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Chicago's

NEW HORIZONS

BANK AT THE *Northern Trust*

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The World's Greatest Inland Port!

Reaching skyward on the shore of Lake Michigan, over 1500 miles from the open sea, is the impressive, growing profile of Chicago . . . America's transportation capital . . . destined to be one of the world's major ports.

The culmination of the St. Lawrence Seaway, Cal-Sag Channel, and Lake Calumet harbor projects will permit larger ocean-going ships to call in the Chicago area . . . bringing ever-expanding foreign trade to the very doorstep of Mid-America.

In keeping with Chicago's role in world trade, The Northern Trust Company's experienced Foreign Department—with its world-wide network of correspondent banks—offers comprehensive financial services.

These include the purchase and sale of foreign exchange, issuance of commercial letters of credit, collection of items on foreign points, and advice on foreign trade. Plan to talk to an officer of our Foreign Department soon—he is as near as your telephone.

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Company
BANK

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Savings • Foreign • Personal Trust
Corporate Trust • Bond • Safe Deposit

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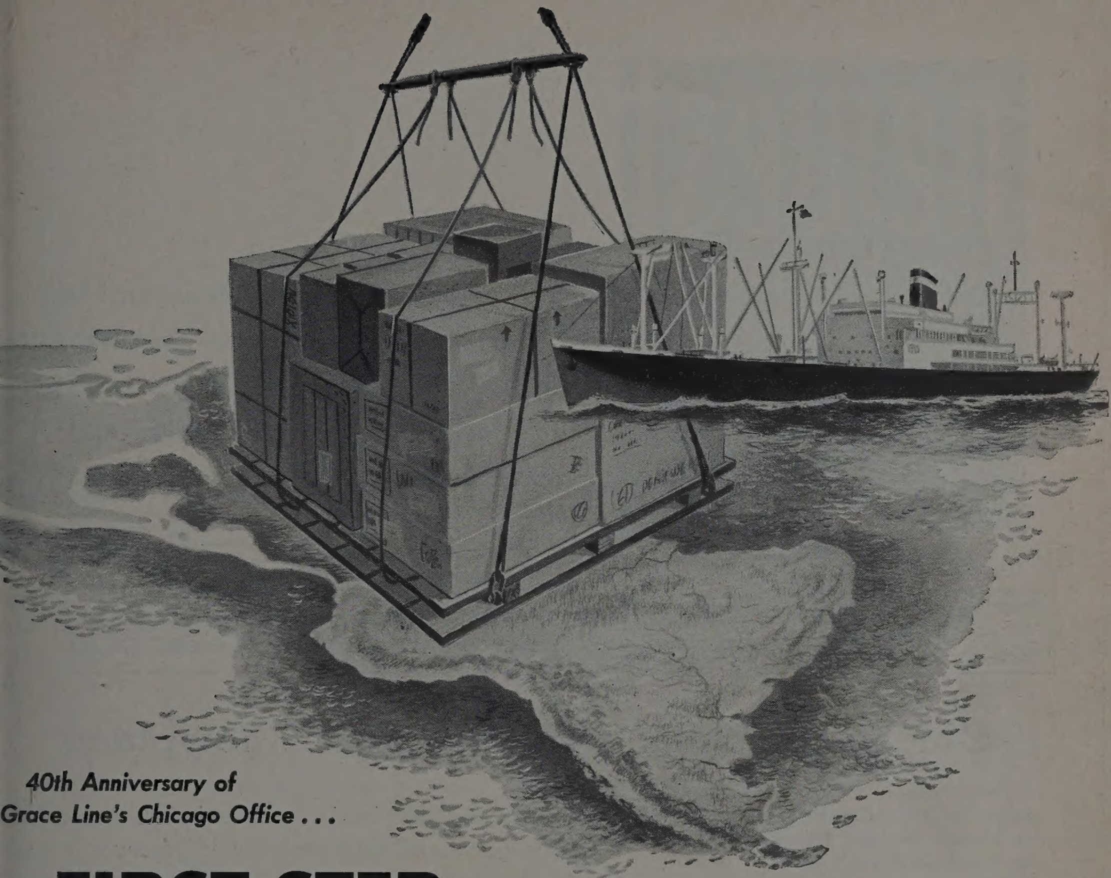
MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION



40th Anniversary of
Grace Line's Chicago Office . . .

FIRST STEP *to Latin America* *for midwest shippers and travelers*

Since 1917 the Grace Line office in Chicago has been the first step to Latin America for shippers and travelers. With Central and South America becoming more and more important to our Nation's foreign trade, Chicago, as always, can look to Grace Line for the best in dependable, frequent American Flag service to the Caribbean and South America.

Growing with Chicago over the past 40 years, Grace Line has seen the metropolis of mid-America become an increasingly important factor in world trade. As more and more finished products and raw materials move from Chicago to foreign markets via the Great Lakes and the St. Lawrence River, as well as through the Atlantic and Gulf Coast ports, the city can look forward to even greater distinction as a vital world port. Grace Line hopes that its experience and facilities will continue to play an important part in this development.

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Serving the Americas
for over a century

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newest
ON CHICAGO'S
HORIZON

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Adjacent to the Stock Yard Inn and its famed Sirloin Room, "Where the Steak is Born."

Famed internationally for the very finest exposition facilities available anywhere.

This second addition to be made in less than three years (shown at extreme right in picture) brings the Amphitheatre's total exhibit space to 585,000 square feet under one roof . . . largest in the nation . . . 483,000 square feet on main floor.

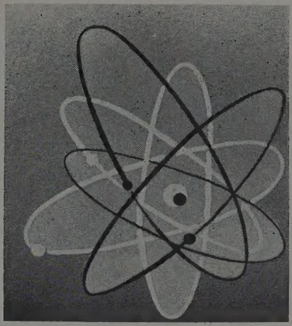
The International Amphitheatre is privately owned . . . free of any tax burden to Chicago's citizens. Located only 20 minutes from the Loop business district . . . convenient to all means of public transportation. Parking for 4,000 cars.

Home of the nation's foremost expositions and shows . . .

- American Road Builders Show
- National Machine Tool Builders Show
- Chicago International Sports and Outdoor Exposition
- International Dairy Show and World's Championship Rodeo
- Chicago Automobile Show
- Industrial Exposition, American Society of Tool Builders
- International Live Stock Exposition and Horse Show
- International Kennel Show
- *Wrestling and Boxing Exhibitions . . . and many other large attractions and gatherings*

International Amphitheatre • 42nd and Halsted

preface



Chicago's New Horizons is the outgrowth of the Chicago area's phenomenal growth in the dozen years since the end of World War II. In that period, the area's population has risen by 1,400,000. More than 400,000 new dwelling units have been erected. More than $3 billion have been invested in new plants and plant expansions, a total far surpassing any other metropolitan area in the nation. Annual production of the area's factories has risen to $20.4 billion from $8.7 billion. Wholesale trade has soared to $21.3 billion from $9.5 billion, and retail trade to $8.3 billion from $4.0 billion.

While this progress has been in the making, comparable improvements have been under way in all of the other facets which combine to make a great modern metropolitan community.

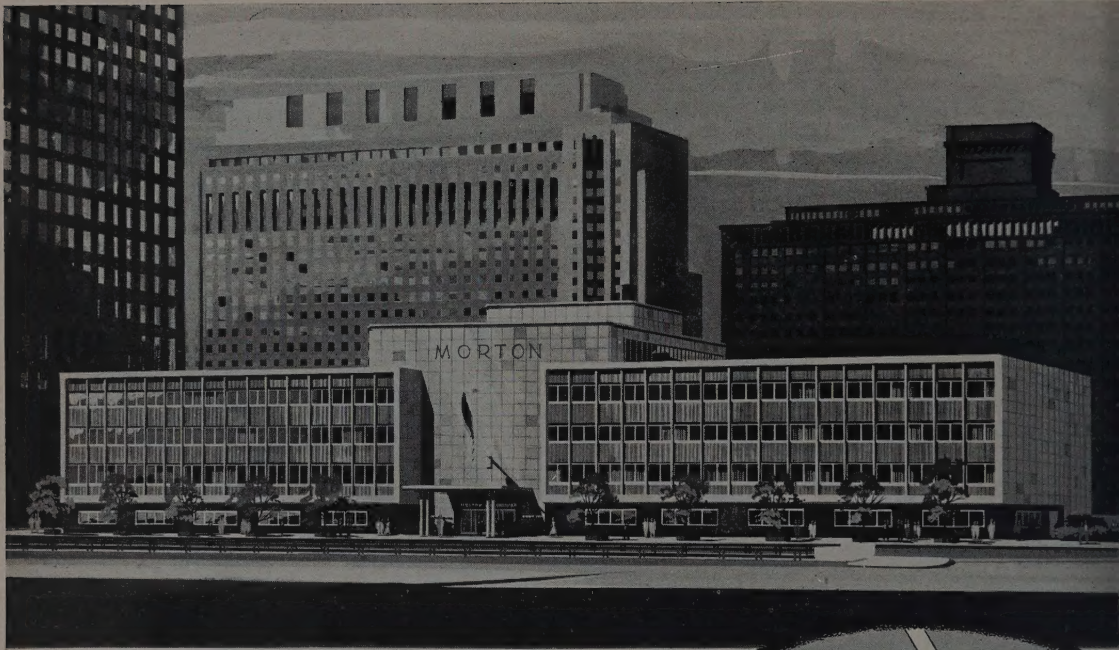
Such growth naturally leads to the question, what is ahead in the next five years, the next decade? This challenging question was posed so often that the Chicago Association of Commerce and Industry felt an appraisal on which an answer could be formulated was called for. The assignment for the study was given to the staff of the Association's magazine, Commerce.

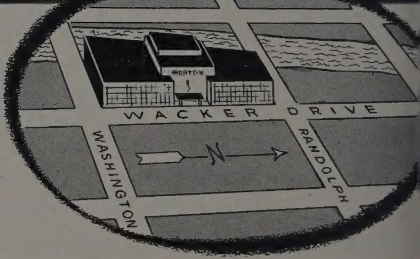
Chicago's New Horizons, which incorporates the views of many noted authorities and the findings of a number of Chicago's most capable reporters and writers, projects Chicago's future to the year 1965. Like all projections, the many in Chicago's New Horizons are subject to the pitfalls of prophecy. We believe, however, that if time proves these forecasts in error, they will be found to err on the side of conservatism.

If the content of Chicago's New Horizons can be summarized in a single sentence, it is that Chicago is destined to continue its recent phenomenal rate of growth — economically, culturally and physically.

Alan Sturdy

Editor





The building that symbolizes over 100 years of progress

In 1848, when Chicago was a young city with only 20,000 people, the business that was later to become the Morton Salt Company opened its doors for the first time.

The ensuing years have wrought myriad changes, and turned the once-small Chicago into a huge modern city . . . THE GIANT OF THE MIDWEST.

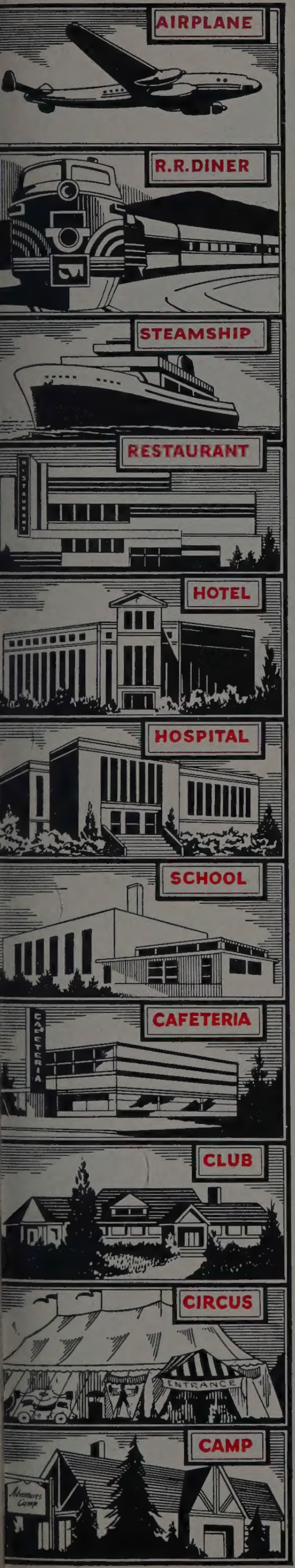
The same factors that brought growth and progress to the city also helped the Morton Salt Company to evolve from the small business it once was, into the nation leader in its field.

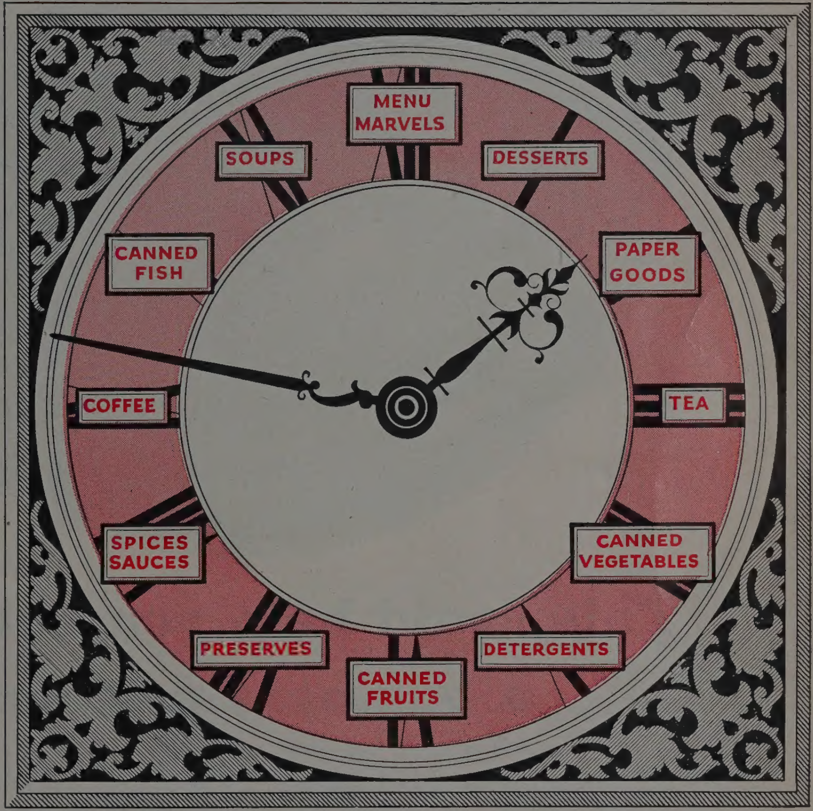
Not least among these factors was Ch cago's water transportation facilities. No with the opening of the Port of Chicago, t city will host a great influx of trade th will benefit Chicago and its businesses a industries to an even greater extent.

The Morton Salt Company is proud have been part of Chicago's past, and ho ored to be part of its new and dynam future.

Morton Salt Company

Around the clock with Sexton





Every time the clock ticks
Sexton Foods are being served
to pleased guests
with greater profit

This could help you button up a business problem!

To some people the big black object you see here might look like a button.

Actually it's a telephone.

Many smart businessmen have used it to button up a business problem by calling STate 2-9000. That's the Continental Illinois Bank in Chicago—where you can get answers to literally hundreds of questions.

What kind of questions?

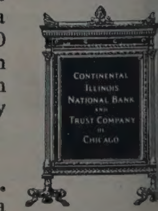
Typical of the ones asked are these: What's the availability of warehouse space in Akron, Ohio? Is there a market for kitchenware in Latin America? Are machine tool operators hard to find in Portland, Oregon?

Why do people come to us for the answers to such questions?

Because they know that the Continental is more than just a bank that happens to be located on the corner of Jackson and LaSalle in Chicago. Actually, we're a "world of banks"—with more than 3,000 correspondents. You'll find these banks in every leading city of the U.S.A., and in every corner of the globe. And they're ready to help you whenever you need them.

Do you have a problem?

Ask the Continental Illinois . . . wherever you are. It's one of the extra privileges that's yours as a depositor or a borrower of this bank in Chicago, which is one of the largest in the world.



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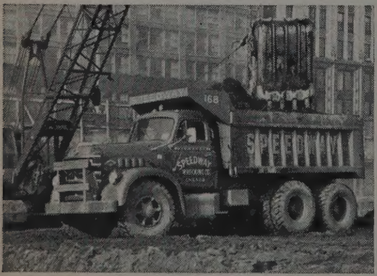
Whatever you haul...wherever you haul...
Diamond T's do your work best!

Diamond T trucks have the power, the capacity, the economy that make tough jobs not only possible but profitable. They are built for rugged service, but engineering advances keep chassis weight down.

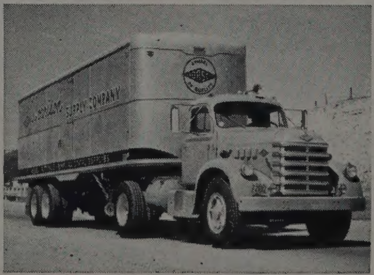
No truck is easier to service, requires less maintenance. And Diamond T's have an extra long life expectancy . . . work efficiently long after you have written them off. Appearance is a big plus. No one finishes trucks as painstakingly as Diamond T—or as well. Compare Diamond T side by side with a other make.

Diamond T's are built for every type of hauling fro two tons up: on the highway or off; truck or tracto gas or diesel power; conventional or Diamond Tiltcab models.

Look in the yellow pages of your phone book f your Diamond T dealer or write Diamond T Mot Car Company, Chicago 23, Illinois.



Diamond T's thrive on the heavy going found around such jobs as construction sites and logging camps.



Designed to give you the most payload within legal limits, maximum fuel economy, and minimum upkeep.

Diamond T's are sold and serviced in all princip export markets, operate economically everywhe

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Richard J. Daley

A City Is Its People

MUCH has been said and written about Chicago's improvement and development program, the most ambitious undertaking of its kind in the nation. But a city is its people, and it is the citizens of Chicago, joined in a giant partnership with their businesses and industries, their institutions and their government, who are bringing this program to fruition.

All are contributing, from the children who assist in clean-up campaigns to the institutions and industries investing many millions of dollars in new structures. Buttressing these efforts are public improvement programs, planned or under way, representing over a billion dollars.

As we work, we see emerging a city that is more than efficient, more than a powerful contributor to the world's goods, more than a leader in the arts and sciences, more than a city of beauty. We see a city that is finding the solutions to one of the universal problems of our age — how to nurture meaning and dignity in the individual lives of our citizens within the complex community of interests that is the modern urban metropolis. To accomplish this, the city must be better in all ways — and that is what we are about in Chicago.

Richard J. Daley

Mayor, City of Chicago

1857

1957

100 years of progress with CHICAGO

... closely knit in the CHICAGO STORY is the story of J&L STEEL

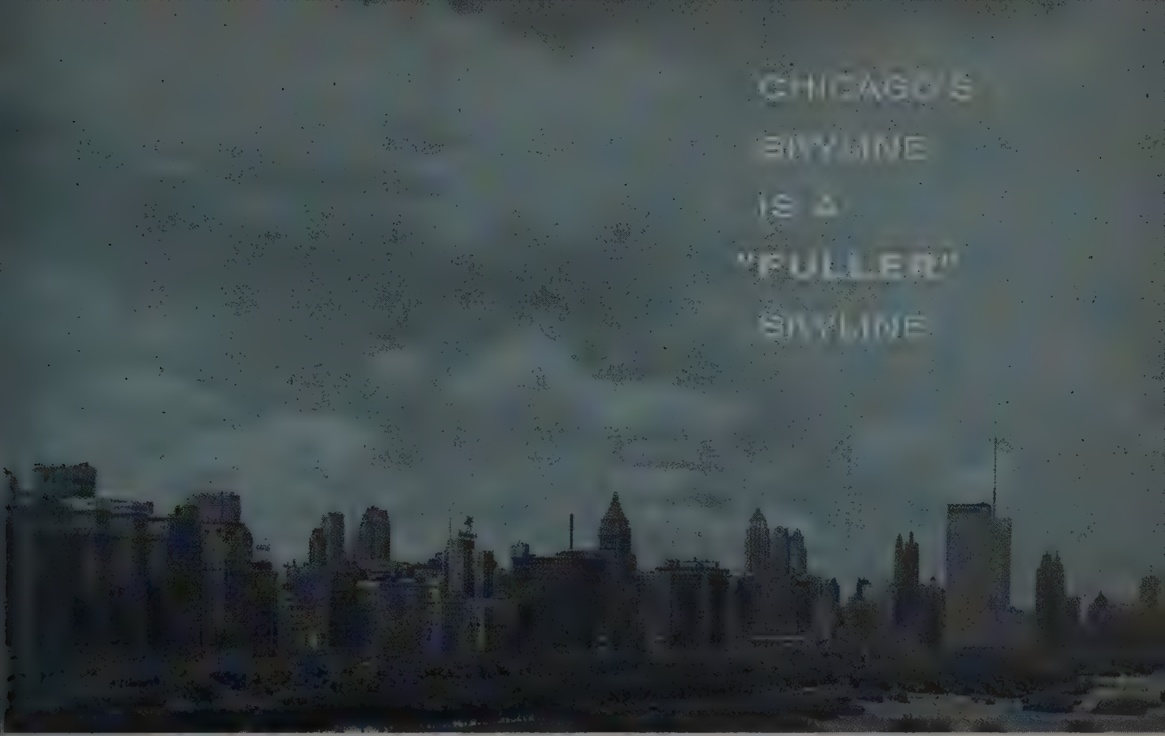
Jones & Laughlin serves Chicago industry from this modern warehouse on West 47th Street, and from the J&L District Sales Office in the Field Building.

As Chicago industry has expanded through the years, J&L has enlarged its services to provide increasing amounts of steel and steel products to the growing community.

J&L is proud that, for most of its 104-year history, it has played a vital role in THE CHICAGO STORY.

J&L STEEL **Jones & Laughlin** ... a great name in steel

District Sales Office — Field Building
Warehouse Division — 2250 West 47th St.
Warehouse Division — Hammond, Indiana
Cold Finished Bar Division — Hammond, Ind.



THIS YEAR—1957—

...is the 75th anniversary of our founding. Although operations are now international, our story began in Chicago in 1882 in the dreams of George Allon Fuller, engineer-architect. After that, Chicagoans brought their building needs to Fuller time and time again. Today, three-quarters of a century later, those needs are still being filled...

efficiently and economically.

Some representative Chicagoland buildings by George A. Fuller Company

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  Pharmaceutical Center
Bedford Park Warehouse
Blackstone Hotel
Bonwit Teller Store
Borg-Warner Building
Borland Building
Calumet Station Power House
Carson, Pirie, Scott & Co.
Champlain Building
Chicago Athletic Club
Chicago Junction Terminal
Chicago Sun-Times
Conrad Hilton Hotel
Corn Products Research Laboratory
Dodge Chicago Plant
Evergreen Park Shopping Plaza
Hotel Sherman Addition
Kirk Soap Factory
Kraft Phoenix Cheese Company Building
LaSalle Hotel
Lumber Exchange Building
Marquette Building
McCormick Building
Michigan Boulevard Building
Monroe Building
Otis Building
Passavant Hospital
Polk Street Freight Station,
  Pennsylvania Railroad
Portland Cement Fire
  Research Center
Portland Cement Structural
  Development Laboratory
Prudential Building
Sears Roebuck Building
Tacoma Building
Trumbull Park Homes
United Biscuit Warehouse
United Masonic Temple
University Club
Wesley Memorial Hospital

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WBC is back in Chicago the big way ...with WIND

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In Chicago or coast to coast . . .

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RADIO—**BOSTON**, WBZ+WBZA: **PITTSBURGH**, KDKA: **CLEVELAND**, KYW:
FORT WAYNE, WOWO: **CHICAGO**, WIND: **PORTLAND**, KEX

TELEVISION—**BOSTON**, WBZ-TV: **PITTSBURGH**, KDKA-TV: **CLEVELAND**, KYW-T
SAN FRANCISCO, KPIX

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KPIX REPRESENTED BY THE KATZ AGENCY, INC.
ALL OTHER WBC STATIONS REPRESENTED BY PETERS, GRIFFIN, WOODWARD, INC.

Chicago --
Birthplace of Tomorrow

Joseph L. Block

CHICAGO is the city in which the future is being born today, just as much that makes up modern man's "today" has been born here in the past. To Chicagoans, "tomorrow" is a familiar and accustomed time, for this city since its beginnings has created the exciting atmosphere of discovery and invention. Indeed, its history is written in "firsts," among them the first transport links between east and west, in the Illinois-Michigan Canal and the railroads; the first metropolitan planning, in the Metropolitan Sanitary District of Greater Chicago; the first skyscrapers, and the first structural steel and fireproofing that made them possible.

With an industrial production rate of well over $20 billion, Chicago now stands first, also, in an impressive list of manufactured products, such as machinery, fabricated metals, communication equipment, petroleum and coal products, electronic equipment, steel, railroad equipment, farm machinery, housewares, meat products, confectionery products, electrical appliances and cosmetics. We serve, too, as the nation's greatest center of transport; the home of State Street, the world's largest shopping district; and an international center of education, the arts, and medical and scientific research.

Tomorrow? It already has begun here with the launching of the Atomic Age and the ceaseless exploration of nuclear energy; in the manufacture and improvement of the automatic machines that ultimately will transform our production and our lives; in the rebuilding of the city, now partly accomplished, though we are the world's youngest major metropolis; and in hewing out a port that will add the world's waterways to our transport hub.

The Chicago Association of Commerce and Industry, proud of its role for more than fifty years in helping to shape today's Chicago, looks forward eagerly to the future Chicago, fully prepared to meet the challenges of dynamic progress.

Joseph L. Block

President, Chicago Association
of Commerce and Industry and
Inland Steel Company

New UOP Research Laboratories at DesPlaines, Illinois

Reaching for New Horizons in Petroleum Refining Technology

Our 40-plus years of experience in opening up new paths in petroleum refining technology has taught us . . . among many other things . . . that you never actually *reach* a horizon. Because, by the time we've achieved today's goal, tomorrow's horizon is already beckoning.

Right here in Chicagoland UOP's continuing search for better ways to produce better products from petroleum more economically has provided refiners the world over with the processes that have made possible the super motor fuel required for today's high compression, high horse power engines and a host of by-products from petroleum, too.

From its modern laboratories in Des Plaines, Universal Oil Products is already reaching for tomorrow's horizons, is already developing the processes to help the refining industry meet the constantly increasing demand for better products from petroleum.

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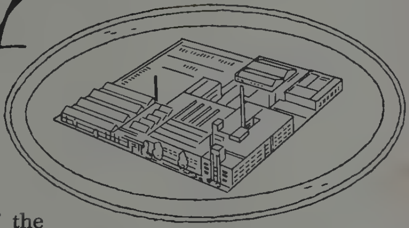
1907



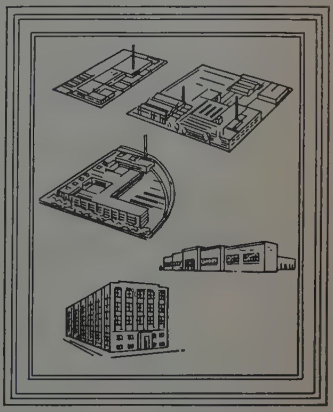
1930

1957-MILESTONE OF PROGRESS

This year is a monumental one, both for Chicago and Teletype Corporation. 1957 marks the 50th anniversary of the founding of our company. We at Teletype got our start in Chicago; we have grown with Chicago; and we know we will share in the bright future Chicago offers.

From a Chicago cold storage attic in 1907, Teletype has grown nto a series of related plants containing over a million square feet of floor area and employing almost 6,000 people. For a half-century, we have expanded to keep pace with the increasing demand for record communications. The rapid rise of Automation, Electronic Computing, and Integrated Data Processing has created limitless fields for transmitting mechanized intelligence.

Our engineering accomplishments have helped to maintain our eadership in the field of record communications—but our achievements are simply stepping-stones, since each success opens new vistas for progress. We feel confident that Teletype Corporation, as a part of the New Chicago, will meet successfully the challenge of tomorrow.



1957

TELETYPE CORPORATION
1400 WRIGHTWOOD AVE., CHICAGO 14, ILL.

FUTURE UNLIMITED—REPORT #3 ON CHICAGO

"Golden Hub" in a $20,000,000,00

Chicago, vital link in the nation's transportation economy, looks forward to vast railroad im provements as the entire transportation industry in the area strives to serve America bette

rail development program

By 1965, U. S. railroads look forward to handling approximately 225 billion more ton miles of intercity freight than in 1955. Chicago will be, as always, the hub of the industry's activity and expansion. Here's a preview of what's happening at the center of "mass production in transportation"—Chicago!

An important phase of operation in the world's most important railroad center, passenger traffic into and out of Chicago amounted to nearly a million persons last year, leading all other cities.

'op management of the railroads has iven the signal—a "high-ball" to comete for a greater load of the traffic in he transportation industry. In the ext decade, 20 billion dollars is earıarked for capital investments. The ity to watch in this dynamic developıent: *Chicago*, nerve-center of the ational railroad network.

Along the 7,869 miles of track that listen in the Chicago Terminal Disrict, 32,010 freight cars are unloaded nd loaded daily. 37 lines serve the istrict and 17% of the country's pasengers arrive at or depart from the ity. Conservatively estimated, Chiago's share of rail development may vell amount to more than 1.6 billion ollars by 1965!

Growing together— Chicago and the railroads

ince 1848, when a tiny wood-burning ngine of the Galena and Chicago Jnion first puffed out of the city, Chicago and the railroads have been artners in progress. In the projected mprovement program, new equipıent, miles of new track, and improved assenger and freight facilities will eighten the importance of Chicago in he national economic picture.

Already more than 65,000 full-time ailroad employees, with a payroll of 70 million dollars annually, make a ingularly rich consumer market. More service and production personnel is coming. And the 4,330 industries served by private track are being joined by others who find the central location of the city a significant factor in selling not only Chicago, but the entire continent.

The promise—and the payoff

The substantial investment scheduled by the railroads, with its corresponding effect upon the world's rail center, amounts to a promise by this vital service to aid mass production with mass transportation. Those industries locating in Chicago can expect two advantages: (1) a wealthy, diversified local market for goods and services and (2) an excellent location for shipping to all sections of the continent under a favorable freight-rate structure and direct "single-line" service.

And, not only Chicago, but the entire nation shares in the benefits created by the highly regulated transportation industry, for railroads, airlines, motor transport and inland waterway carriers accounted for approximately 6½% of the 1955 national tax payments. This figure would be substantially increased if state and franchise taxes were included.

Expansion—the chain reaction

The railroad expansion story in Chicago is spectacular, but no more exciting than the general industrial view in this strategic area. *All* commerce is growing—creating new jobs and lucrative markets.

If you would like to participate in this rich expansion, able help is available to you at The First National Bank of Chicago, a keystone of financial aid in Chicago since 1863.

Our Commercial Banking Department at The First is organized to offer a unique and comprehensive service to every type of business. Each of its 10 Divisions serves one group of industries exclusively and is staffed with specialists who understand the needs and problems of your field. Its officers speak your business language.

Close contact with a world-wide representation of correspondent banks puts our Foreign Banking Department in a position to provide service and information for your transactions abroad.

If you'd like to know more about Chicago's prosperous future and how The First can assist you in sharing in it, write us today!

* * *

The First National Bank of Chicago gratefully acknowledges the aid given by the following organizations in the preparation of this article: The Chicago Association of Commerce and Industry; Modern Railroads; The Association of Western Railways; and The Transportation Association of America.

MEMBER F.D.I.C.

The First National Bank of Chicago

Building with Chicago since 1863

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of Powerful Donnelley Sales Printing

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FASTER, AT LESS COST,

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FROM ANY OTHER MAJOR CITY

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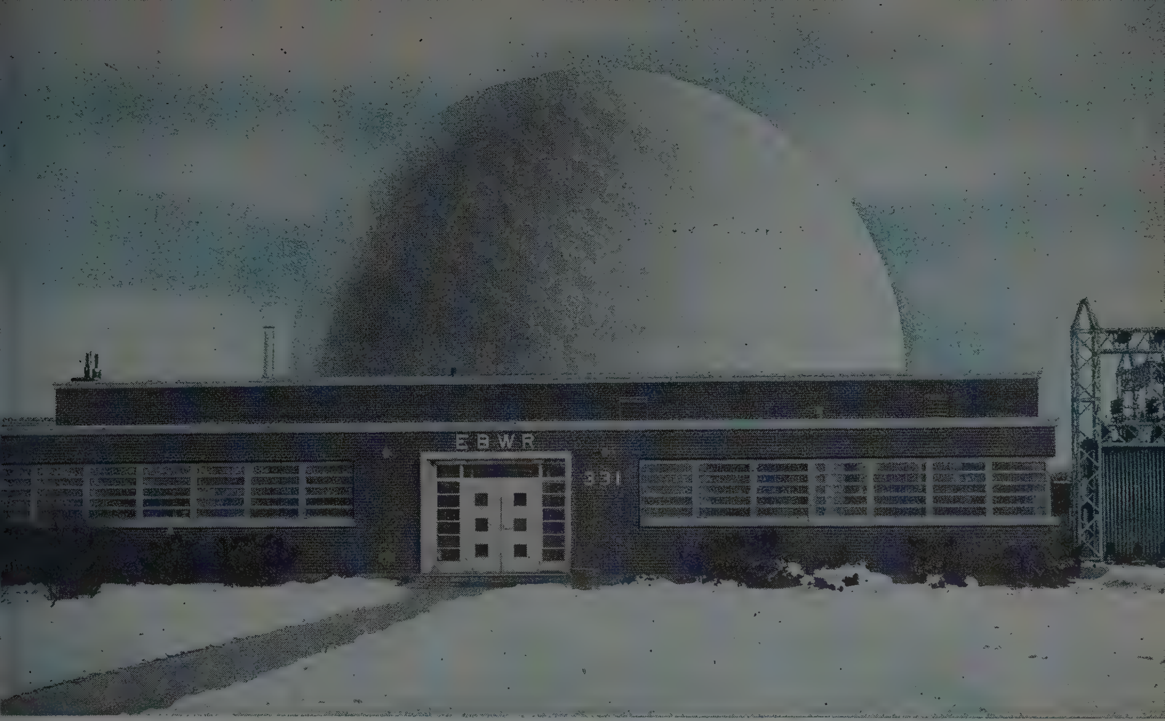

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from Dedication address, Feb. 9, 1957, by Rep. Carl T. Durham, Chairman, Joint Congressional Committee on Atomic Energy.

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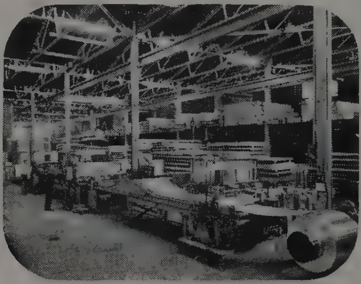

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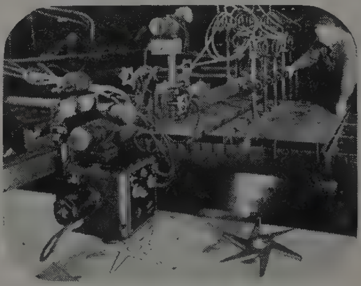

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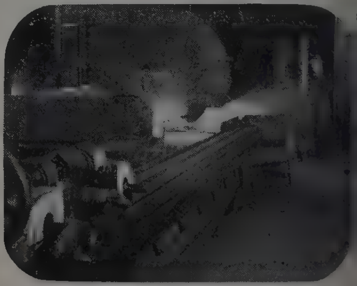

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By James C. Downs, Jr.
Chairman, Real Estate
Research Corporation

One of the newest on Chicago's downtown horizon is the Prudential building

The Chicago of Tomorrow

A GREAT many people who listen to or read accounts of Chicago's future are inclined to view our present optimism with a great deal of skepticism. There is little wonder that this is so. The saga of all American growth — not alone in size, but in living standards — can only be believed in retrospect. If

(Continued on page 259)

Left: Inland Steel's new office building

Below: Chicago Sun Times' new riverside plant

More and more foreign ships will use Chicago port facilities

Seaway Developments to Make Chicago the World's Greatest Inland Port

By Arthur H. Schwietert

METROPOLITAN Chicago, long the natural functional center of the nation's network of railroads, commercial airlines and interstate highways, stands on the threshold of a transportation development which will bring to the area unmatched industrial and economic growth over the next ten to fifteen years. Along with this growth, Chicago's historic advantages as the heart of the largest single production and marketing area in the United States will take on new world-wide significance.

Three projects will play a joint role in this new era of growth: the St. Lawrence Seaway, Chicago's port program in Lake Calumet, and the widening of the Calumet-Sag Channel, Chicago's vital link with the Illinois-Mississippi waterway and the widespread tributary systems of the Missouri and Ohio Rivers. Together these developments will spark the greatest period of progress metropolitan Chicago has experienced since the turn of the century.

Of the three projects, the Calumet-Sag Channel improvements have received less public attention than they deserve as in inseparable part of the broad picture of expansion to come. The Seaway, the Port of Chicago and Calumet - Sag Channel complement each other, and only by bringing C Sag to its maximum usefulness w the new area potential be reached.

Early in 1959, on the basis of t present U.S.-Canadian timetable, t work of deepening the Seaway to feet and constructing massive lo in the Long Sault Canal above M sena, N. Y., will be finished. Shor thereafter, the channels connecti the Great Lakes will be improved the controlling depth of the Seaw itself.

When these improvements ha been completed, Chicago will b come the world's greatest inland p linking the industry, agriculture a commerce of the vast midcontine area of the United States with t

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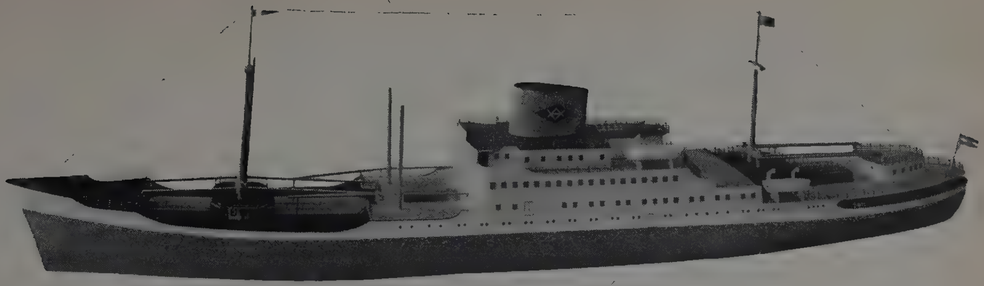
The author is director of the transportation division of the Chicago Association of Commerce and Industry.



Fjell Oranje Line is building this 100 passenger ship to service Port Chicago. It is expected to be completed in 1959

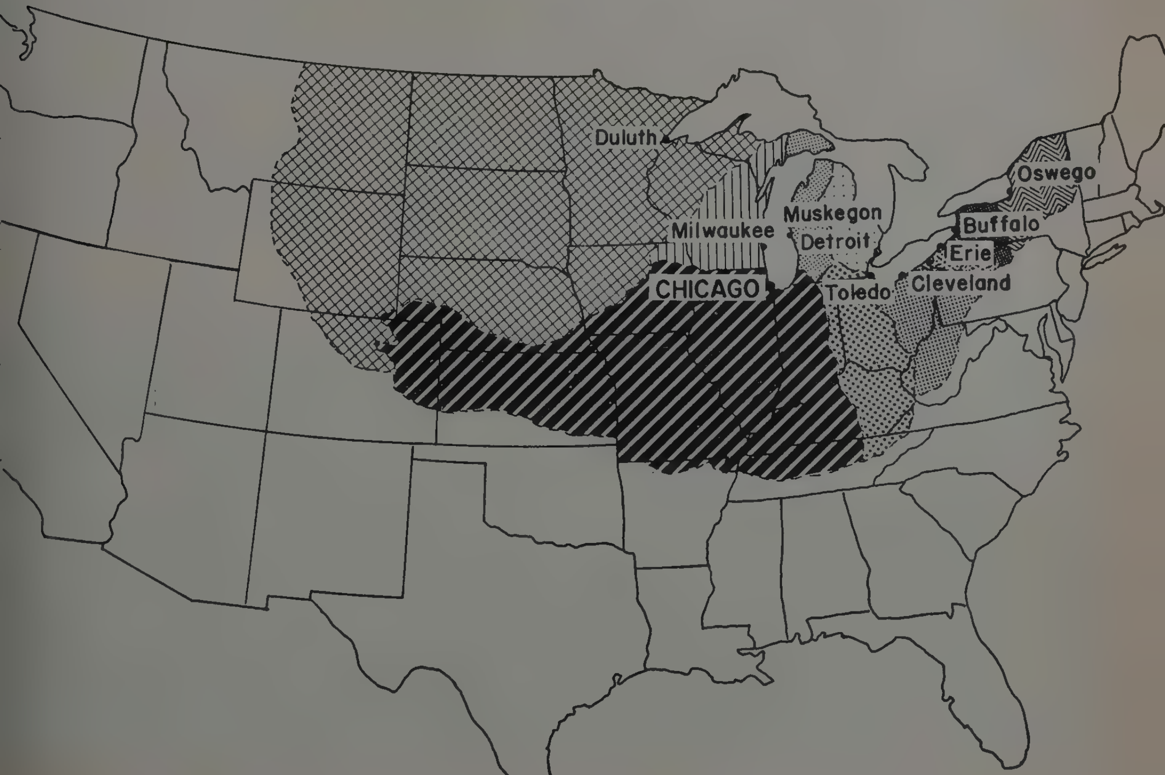
t of the world. At that time, ves-
s with four or five times the cargo
pacity of the ocean-going ships now
ving the Great Lakes will be able
call regularly at the Port of Chi-
go. This means that a majority of
e deep-draft cargo ships now call-
g at Atlantic Coast ports will be
le to come directly to Chicago
om many parts of the world.

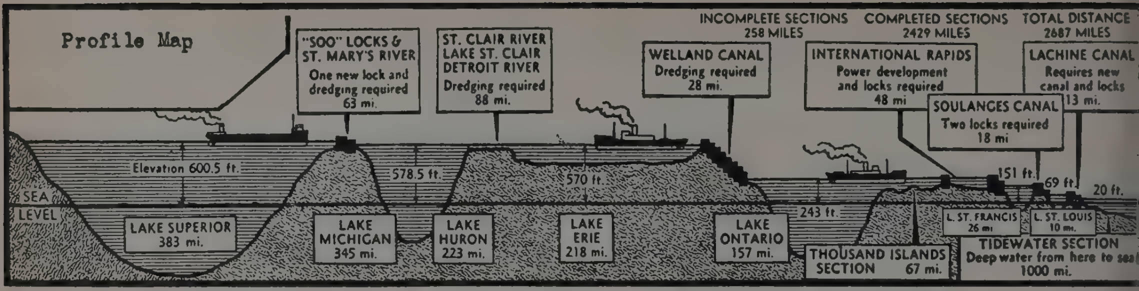
The number of sailings of such
ep-draft general cargo vessels will
ceed by a substantial margin the scheduled services now being maintained by foreign flag lines over the limited facilities of the present St. Lawrence Seaway. In terms of tonnage, an increase of at least six fold is expected within five years after the seaway is opened for navigation. This means that by 1965 a minimum of 1½ million tons of overseas freight will be handled via the Port of Chicago as compared with an estimated 250,000 tons in 1956.

Most ocean freighters now calling at Chicago are from Atlantic European ports. Service has been extended to include Mediterranean and Caribbean ports, however, and when the seaway is opened, service undoubtedly will be established to South American and West African ports and probably will extend to the ports of India and the Far East via the Suez Canal.

A number of major United States shipping lines not now entering the Great Lakes have announced their

Areas of Advantage Possessed by Leading Great Lakes Ports




Profile Map
INCOMPLETE SECTIONS 258 MILES
COMPLETED SECTIONS 2429 MILES
TOTAL DISTANCE 2687 MILES
"SOO" LOCKS & ST. MARY'S RIVER One new lock and dredging required 63 mi.
ST. CLAIR RIVER LAKE ST. CLAIR DETROIT RIVER Dredging required 88 mi.
WELLAND CANAL Dredging required 28 mi.
INTERNATIONAL RAPIDS Power development and locks required 48 mi
LACHINE CANAL Requires new canal and locks 13 mi.
SOULANGES CANAL Two locks required 18 mi
Elevation 600.5 ft.
578.5 ft.
570 ft.
243 ft.
151 ft.
69 ft.
20 ft.
SEA LEVEL
LAKE SUPERIOR 383 mi.
LAKE MICHIGAN 345 mi.
LAKE HURON 223 mi.
LAKE ERIE 218 mi.
LAKE ONTARIO 157 mi.
THOUSAND ISLANDS SECTION 67 mi.
L. ST. FRANCIS 26 mi
L. ST. LOUIS 10 mi.
TIDEWATER SECTION Deep water from here to sea
1000 mi.

Profile map of the Great Lakes section of the seaway project

intention of doing so, some before and others immediately after completion of the seaway.

Chicago is as close to much of Europe as New York is and direct shipments via the Seaway route will be handled at much less cost than by rail or truck to New York and thence by ocean vessel. Seaway freight costs are now from ten to 40 per cent under the combined rail-water route via the East Coast.

Expand Schedules

Chicago area businessmen returning from abroad report that shipowners and operators in Northern Europe, on the Mediterranean and elsewhere are making plans to expand existing schedules and to institute new services. Naval architects in the maritime districts of West Germany, France, England and the Scandinavian countries are said to have on their drawing boards preliminary designs for prototype vessels to be used in the Great Lakes trade. This sort of activity will be stepped up substantially within the next two years. American flag lines, too, will be in the Great Lakes world trade at rates competitive with the rates set by foreign flag conference lines.

The Cal-Sag Channel improvements are extremely important in this general picture. Cal-Sag has been called "Destiny's Ditch" and it deserves the designation. Since 1930 the Cal-Sag, the Chicago Sanitary and Ship Canal, the Chicago River to its mouth at Lake Michigan, the Little Calumet River, and the Calumet River to Calumet Harbor on Lake Michigan, have been part of the federal waterway system, dedicated to public use for navigation. Improvement of this vital artery of commerce is, therefore, a basic responsibility of the United States Government.

Destiny's Ditch is that portion of the system which connects the Little Calumet River with the Chicago Sanitary and Ship Canal at Cal-Sag Junction. Only 16 miles long, t Cal-Sag Channel winds through t southern half of Cook County to lin the Port of Chicago with the va Illinois-Mississippi waterway system The importance of this link to Ch cago's future as a world seaport apparent when one considers the va area bordering the Illinois, Miss sippi, Missouri and Ohio rivers, area much of which finds Metrop itan Chicago its natural mark place.

Inadequate Now

Great as its destiny is, the Cal-S Channel in its present state is ph ically inadequate to the demands th will be made upon it when the Po of Chicago Program and the Lawrence Seaway have been co pleted. Barges carrying freig through Cal-Sag now must in through a channel only 60 feet wi — ten feet less than the minimu width required for the usual bar of 35-foot beam to pass another bar

Junction Calumet Sag Channel and Chicago Sanitary and Ship Canal prior to commencement of channel widening (June, 1954)

Junction Calumet Sag Channel and Chicago Sanitary and S Canal showing channel widening activities (October, 19

ng in the opposite direction. In
ıal practice, barges loaded with
h bulk commodities as sulphur
n Louisiana and coking coal
m Illinois, Indiana and Kentucky
ds, frequently have had to back
two or three miles to a passing
a to permit another tow to go by.
ıen the Cal-Sag is widened and
obstructing bridges replaced or
noved, the number of barges that
be handled in a tow will be
adrupled, at a substantial saving
h to barge line operators and
ppers.

Chicagoans can get a vivid mental
ture of how the present width of
l-Sag restricts navigation by con-
ering how long it would take them
get to and from the Loop by auto-
bile if the north and south outer
ves and the new Congress street
pressway were reduced to a single
e and the emergency bays placed
greatly increased intervals.

Despite present limitations more
n 4½ million tons of freight
eeze through the Cal-Sag each
r. Army Engineers estimate that
hin five years after the entire
ject has been completed the an-
al traffic will amount to 13,248,-
) tons. The economic benefit ratio
uld be 2.4 to 1. The Army Engi-
ers' estimate of prospective ton-
ge is conservative in view of the
id developments taking place
hin the Chicago Metropolitan
ea. On the basis of industrial ex-
nsion since the estimate was made
s reasonable to assume that within
years after the project has been
npleted annual traffic will amount
a little over 16 million tons.

Broader Project

Actually, the Cal-Sag Channel is
t of a somewhat broader naviga-
n improvement project approved
Congress as long ago as July 24,
6. The project provides for the
owing developments:

a) Widening from its present 160
t to 225 feet a ten-mile span of
Chicago Sanitary and Ship Canal
m Lockport, Ill., to Sag Junction,
point at which Cal-Sag swings
ward.

b) Widening the Calumet-Sag
nnel from Sag Junction to the
tle Calumet river from its pres-
inadequate 60 feet to 225 feet.
e distance in this case is 16.2 miles.

Photo courtesy of DeLeuw, Cather and Company, Engineers

Four foreign ships loading and unloading cargo at newly built docks at Lake Calumet Harbor. When finished, many more ships will be able to use port facilities simultaneously

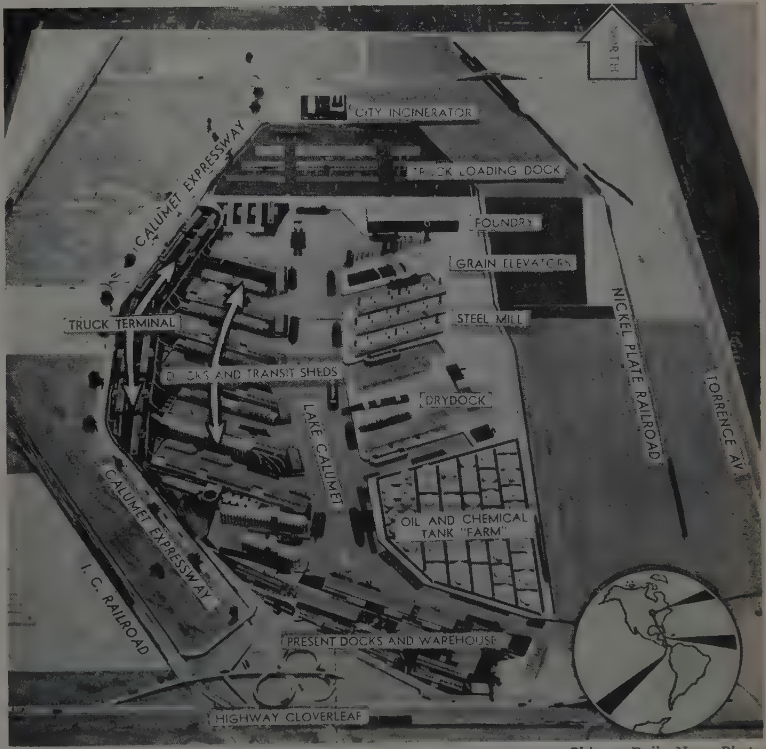
(c) A channel 225 feet wide and nine feet deep in the Grand Calumet river from its confluence with the Little Calumet river near 130th street in Chicago to its junction with the Indiana Harbor Canal and thence in that canal to the present head of deep draft lake navigation at 141st street.

(d) A channel 160 feet wide and nine feet deep in the Grand Calumet river from its junction with the Indiana Harbor Canal to Clark street, in Gary, Ind.

(e) Two locks, one in the Little Calumet river and one in the Grand Calumet river, to regulate diversion of water from Lake Michigan.

(f) Removal or reconstruction of all obstructive bridges throughout the course of the channel.

(Continued on page 122)



Chicago Daily News Photo

Lake Calumet Harbor as it will be laid out when completed

Metropolitan Chicago Area Is Fastes

IT may be stated with confidence that the Chicago Metropolitan Area will continue to experience substantial growth in the coming quarter century. Chicagoland is certain to obtain at least its share, and in all probability somewhat more than its share, of the remarkable upsurge in the population growth of the United States as a whole.

Since the City of Chicago is near the saturation point in population with present modes of land use, the continued population growth of the area must necessarily occur mainly in the metropolitan ring surrounding the city. This will involve rapid changes in the nature of the suburb and suburban life, and the possibility that unplanned growth will bring with it many of the serious problems experienced by the city.

Chicagoland, or the Standard Metropolitan Area comprising Cook, Lake, DuPage, Kane and Will counties in Illinois and Lake County, Ind., topped the six million mark in population in 1955 and contained an estimated 6,250,000 persons in mid-1956[1]. Of the latter total, 3,745,000 persons were residents of the City of Chicago and the remainder, 2,505,000, were in the ring outside the city but within the six-county area.

Thus, since the 1950 census, the metropolitan area increased by some 755,000 persons, or 14 per cent. Most of the increase, 631,000 persons, was absorbed in the ring, which grew almost 34 per cent, while the City of Chicago increased 124,000 persons, or 3.4 per cent.

Since the projections of Chicagoland's population which follow are based essentially on established growth trends and the relation between previous growth and the an-
ticipated growth of the nation,
us briefly examine the patterns
population growth.

The metropolitan area as a wh
increased from 2.1 to 5.5 milli
persons, about 2½ fold, in the h
century between 1900 and 19
During the same period the popu
tion of the city increased from 1.7
3.6 million persons — or a little m
than doubled; whereas the popu
tion of the outlying ring increas
from some 400,000 to 1.9 milli
persons—or almost quintupled.
the thirty years between 1920 a
1950 the population of the standa
metropolitan area increased from
to 5.5 million, or by 56 per ce
During the same period the popu
tion of the city increased from 2.7
3.6 million, or by 34 per cent; wh
that of the metropolitan ring m
than doubled, from 820,000 to
million.

Pattern of Growth

Let us examine, also, the patt
of growth between 1920 and 1950
county within the standard me
politan area, as a basis for proj
ing differential growth by cou
into the future. During this per
the greatest absolute populat
growth in Chicago's metropoli
ring occurred in Cook County,
cluding the City of Chicago. C
County, excluding Chicago,
creased from 351,000 to 888,000,
over half a million persons— o
2½ fold increase. DuPage Cou
however, experienced the grea
rate of growth, from 42,000 to 1
000, almost a four-fold increase. (
Table 1.) Lake County, Ill.,
Lake County, Ind. each more t
doubled; the former increasing fr
74,000 to 179,000, the latter fr
160,000 to 368,000. Kane and W
Counties grew the slowest dur
this thirty-year period; Kane fr
99,000 to 150,000, or about 50
cent, and Will from 93,000 to 1
000, or about 45 per cent.

Between 1950 and 1956 this
tern of growth, in the main, c
tinued. The greatest absolute

Table I

POPULATION, IN THOUSANDS, FOR THE CHICAGO STANDARD METROPOLITAN AREA: 1900, 1920, 1950, AND 1956.

Area	U. S. Census 1900	 1920	 1950	Estimated 1956*
Chicago Standard Metropolitan Area	2,093	3,522	5,495	6,250
City of Chicago	1,699	2,702	3,621	3,745
Metropolitan Ring	394	820	1,874	2,505
Cook Co., exc. Chicago	140	351	888	1,200
DuPage Co.	28	42	155	230
Kane Co.	79	99	150	205
Lake Co., Illinois	35	74	179	255
Lake Co., Indiana	38	160	368	445
Will Co.	75	93	134	170

*Preliminary estimate prepared by Chicago Community Inventory, University of Chicago; subject to revision as complete data become available.

Table II

PROJECTED POPULATION, IN THOUSANDS, FOR THE CHICAGO STANDARD METROPOLITAN AREA: 1980

Area	High	Medium	Low
Chicago Standard Metropolitan Area	8,380	7,900	7,330
City of Chicago	4,220	4,150	4,110
Metropolitan Ring	4,160	3,750	3,220
Cook Co., exc. Chicago		1,850	
DuPage Co.		400	
Kane Co.		260	
Lake Co., Illinois		400	
Lake Co., Indiana		640	
Will Co.		200	

The author is director of the Chicago Community Inventory, University of Chicago.

[1] Estimated by the Chicago Community Inventory, University of Chicago, for the Office of the Housing and Redevelopment Coordinator and Department of City Planning, City of Chicago.

Growing Metropolis in the Country

Chicagoland population topped six million mark in 1955 and is expected to reach eight million level by 1980

By Philip M. Hauser

ease was experienced by Cook unty, excluding Chicago, which ded roughly 300,000 persons for a per cent increase. The most rapid e of increase was experienced by Page County with a 48 per cent owth from 155,000 to 230,000 pers. Lake County, Ill. increased o-fifths to 255,000 persons, and ke County, Ind. a fifth to 445,000 rsons. Kane County increased 37 r cent during the six-year period, m 150,000 to 205,000, and Will unty increased 27 per cent, from 1,000 to 170,000.

These general patterns of growth projected to 1980 in relation to e anticipated total growth of the ited States as estimated by the Buu of Census.[2] The projected poptions thus obtained are shown in ble 2 for the metropolitan area, e city, and by counties in the metoolitan ring. As some indication the alternative growth patterns ich might develop in the future, nge" rather than "point" estites are shown. That is, the estites are shown for "low," "medi," and "high" levels, varying with e assumptions which were used.

Population by 1980

By 1980, it is estimated, the popuion of the Chicago Standard Metoolitan Area will be 7.9 million. is "medium" projection would present an increase of 2.4 million, 44 per cent, over the 1950 populan. The "low" projection produces increase of 1.8 million, or 33 per nt, between 1950 and 1980; and e "high" projection, an increase 2.9 million, or 53 per cent.

During the same thirty-year ped, the City of Chicago will, acrding to the "medium" projection, ach a total of 4.1 million by 1980. is would be an increase of about),000 or 14 per cent over the y's 1950 population. It is possi-, however, on the assumptions ed, that Chicago's population in

Kaufmann & Fabry Photo

Chicagoland population may exceed eight million mark by 1980

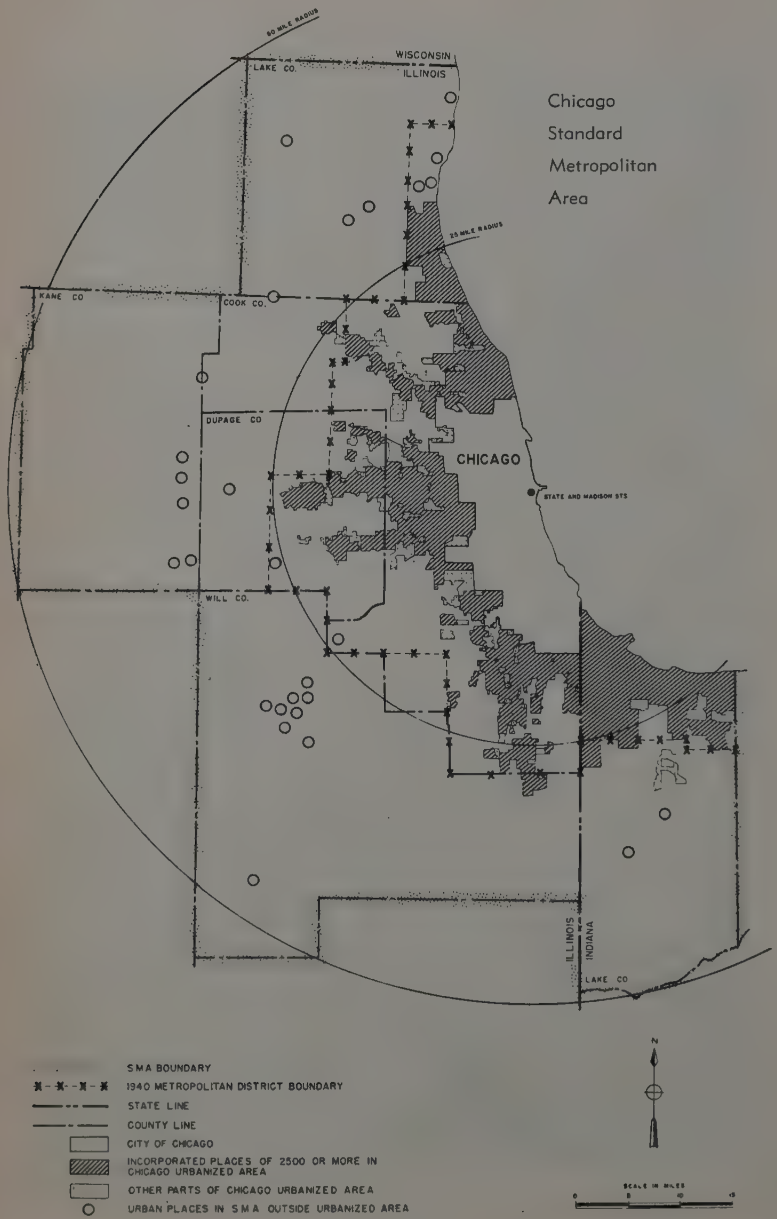
U. S. Bureau of the Census, Current Poption Reports, Series P-25, No. 78.

1980 may range from 4.1 to 4.2 million, increasing over 1950 by some 14 to 16 per cent.

The metropolitan ring may, by 1980, reach a total of some 3.8 million — a population, it should be noted, greater than that of the City of Chicago in 1950. This would be an increase of some 1.9 million persons or a doubling of the ring's 1950 population. The projections indicate, however, that the population of the ring in 1980 may vary from a low of 3.2 to a high of 4.2 million. These estimates would represent respectively an increase of 1.3 million, or 72 per cent, or an increase of 2.3 million, or 122 per cent, over 1950.

The differences in growth patterns for the various subdivisions of the metropolitan area will result in a greatly changing distribution of population. In 1920 the City of Chicago contained 77 per cent of the population of the entire metropolitan area; by 1950 this had shrunk to 66 per cent. By 1980 according to the "medium" projections, Chicago would contain little more than hal — 52 per cent — of the metropolita area population; and it is possibl that the ring will have more inhab tants by this date than the city.

The projected populations for th metropolitan ring, by counties, ind cate the differential growth whic would occur if past growth trenc continued into the future. Betwee 1920 and 1980 the proportion of th ring's population in Cook Coun (excluding Chicago) may chang from 43 per cent to 49 per cent; th proportion in DuPage County ma as a result of that county's relativel rapid growth, increase from five pe cent in 1920 to 11 per cent by 198 and Lake County, Ill. is likely to i crease from nine to 11 per cent. I contrast, Kane's proportion may d crease from 12 per cent to 7 p cent, and Will's from 11 to 6 p cent. Lake County, Ind., despite i great growth, may also show a d crease, from 20 per cent in 1920 17 per cent in 1980. If the popul tion in the ring is redistributed this way by 1980, the projected po ulations shown in Table 2 would l observed.


Chicago Standard Metropolitan Area

"Medium" Projections

Using the "medium" projectio for the metropolitan ring, it is es mated that by 1980 Cook Coun excluding Chicago, will contain l million persons; Lake County, In would have a population of 640,00 Lake County, Ill. and DuPage Cou ty would each have 400,000 perso Kane County, 260,000, and W County, 200,000. The total anti pated increase in the metropolit ring between 1950 and 1980 wou be 1.9 million inhabitants. Of t increase, 962,000 would be absorb by Cook County, excluding Chicag 272,000 by Lake County, Ind.; 22 000 by Lake County, Ill.; 245,000 DuPage County; 110,000 by Ka County; and 66,000 by Will Coun These projected figures, though o representing one of many possi growth patterns, do indicate t substantial increases in populati are in prospect for each of the co ties making up the metropoli ring.

The general patterns of potent population growth for the city a county areas within the metropo tan ring can be calculated with re

(Continued on page 256)

:hitect Roy Binkley's home in Prairie View, Illinois

lome Building To Continue At High Rate

392,825 Housing Units Built in Metropolitan Area Since World War II

By Ernest Fuller

AKE the greatest industrial expansion ever known in any region of the United States, mix
vith high employment and income
d a growing population, and you
ve a home building boom of the
nd that has completely remade
eat sections of the map of metro-
litan Chicago in the last 11 years.
The transformation of prairies, left-over subdivisions of the '20s, truck farms, and cornfields into residential communities has been going on with only minor setbacks in the Chicago region since 1945. And contrary to popular belief, the development has not been a strictly suburban affair. Much of the building has been inside the city.

The post-war building boom, of course, has been a national phenomenon — nothing that Chicago can claim as its own. Nevertheless, Chicago's home building story is proving itself exceptional in many important respects.

First, a look at the record: In the years 1946 through 1956, a total of 327,290 single family home building permits were issued in the Chicago metropolitan area. The figures, com-

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The author is real estate editor, "Chica-
Tribune."

e of the 6,000 homes proposed for the Elk Grove Village development of Centex Corporation

piled by Bell Savings and Loan association, cover Chicago, suburban towns in Cook, Du Page, Kane, Lake (Illinois), and Will counties as well as the unincorporated areas of those counties.

In the same 11 years, permits were issued for 65,535 apartment units. Thus, total housing units (homes plus apartments) built in the Chicago area in the period numbered 392,825. The busiest of the 11 years was 1955 when 44,529 homes and 8,311 apartments were built. The lowest totals were in 1946, the first full post-war year when 18,431 homes and 6,313 apartments were built.

The value of all new housing in the area in the 11 years approximated 4½ billion dollars. Of this total, the peak year of 1955 accounted for 698 million dollars. Despite these giant sized figures, however, builders and lenders are quick to point out that Chicago's home building since the war has been on the conservati side.

850 De Witt Apartment on Chicago's near North side

Park Forest on Chicago's South end continues to grow

Although Chicago has had a goo ly number of super-projects, no o area has had a monopoly on t supply of new shelter. The close northwest suburb of Skokie, for e ample, has been one of the leade in the home building race, yet t 1,107 homes it added in 1956 sta up pretty small against the over- total of 39,919 built in the Chica region last year.

Generally speaking, the great home building push has been to t northwest. Yet Gary, in the opposi direction from Chicago, has co sistently been among the hom building leaders. And Park Fore the first and one of the largest the post-war projects, is south.

The fact is, as anyone can testi who has gone house hunting in t area, there's building going on all directions. "I can remember f years ago when this was all prairi is an often heard remark arou Chicago on any Sunday afterno

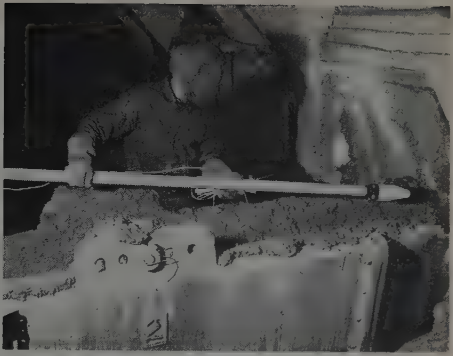
Boon Companions

Automobiles and homes may co pete for the consumer's dollar, b they are boon companions in t building boom. A look at the m of metropolitan Chicago shows t older suburbs clustered along t right of way of the commuter ra road lines such as the North We ern, Burlington, Rock Island, a Illinois Central.

Much of the build-up in rece years also has been along the ra roads, but with land in many these sections becoming scar builders are turning more and m to the wide open spaces between t commuter lines. This is feasible, course, only because of the auton bile. Some new communities have public transportation of any kin a situation that even in the p perous '20s would have doomed m of these projects before they got the drawing boards.

Highways and superhighways w continue to let home builders spr their operations ever wider a farther from the central city. At same time, however, they are pected to help rejuvenate some the older Chicago neighborhoo One plan envisions a gridwork

(Continued on page 250)



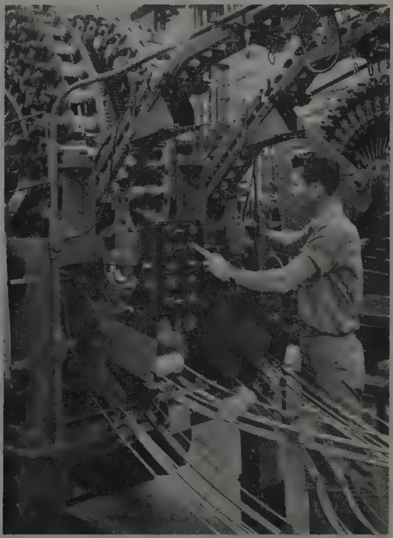
Area Employment Will Offer Million New Jobs

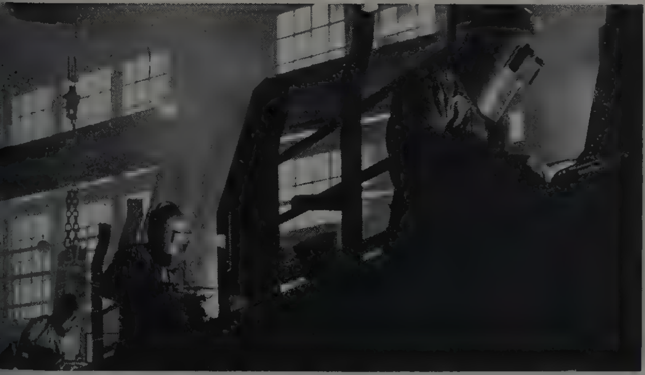
JOB opportunities for everyone from common laborers to skilled artisans, technicians, scientists and people in the professions, will be abundant in Chicago for many years to come. A study made by the Chicago Association of Commerce and Industry indicates that in the five years 1955 to 1960 there will be at least 513,000 jobs to be filled. Among these will be a minimum of 208,000 entirely new jobs. The likelihood is that there will

(Continued on page 200)

By De Ver Sholes

Director, Business Research and Statistics Division, Chicago Association of Commerce and Industry





hicago area offers the world's greatest variety in employment and vocational and on-the-job training. Photos (reading counter
ise) from Inland Steel Company, Flexonics Corporation, Minneapolis-Honeywell Regulator Company, United Press, Pullman-
rd Car Manufacturing Company, and American Can Company

Above: suggested model for Chicago Exposition Center (Hol
and Root)

Left: first-prize design in Carson Pirie Scott and Comp
centennial competition in city planning

Chicago Public Works: Model for Nation

THE Chicago of the future is being built today. If a single word could describe the city — its traditions, its present and its destiny — that word would be "building." From its origins 120 years ago, Chicago has rung to the sounds and the excitement of construction. The pounding of the carpenter's hammer has given way to the rivet gun's staccato, but the race to shape a city big enough to accommodate its geometric growth has spurred every generation of its citizens.

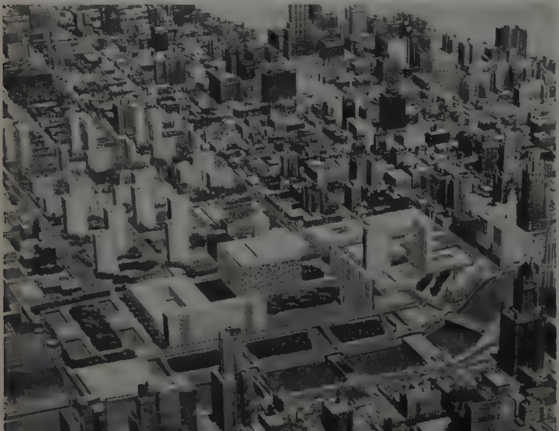
When today's infants cast their first ballots, the Chicago area will have leaped again to a population 44 per cent larger than the 5.5 million reported in the 1950 census. Experts predict that in 25 years the metropolitan area will be fully built up and developed, residentially, industrially, and with accompanying municipal facilities, within a 50 mile radius of the heart of Chicago's Loop at State and Madison streets.

If the present rate of capital improvement and urban redevelopment continues, Chicago will have invested some $4 billion over the next two decades in its future, a future that promises to make it the foremost metropolitan center in the world.

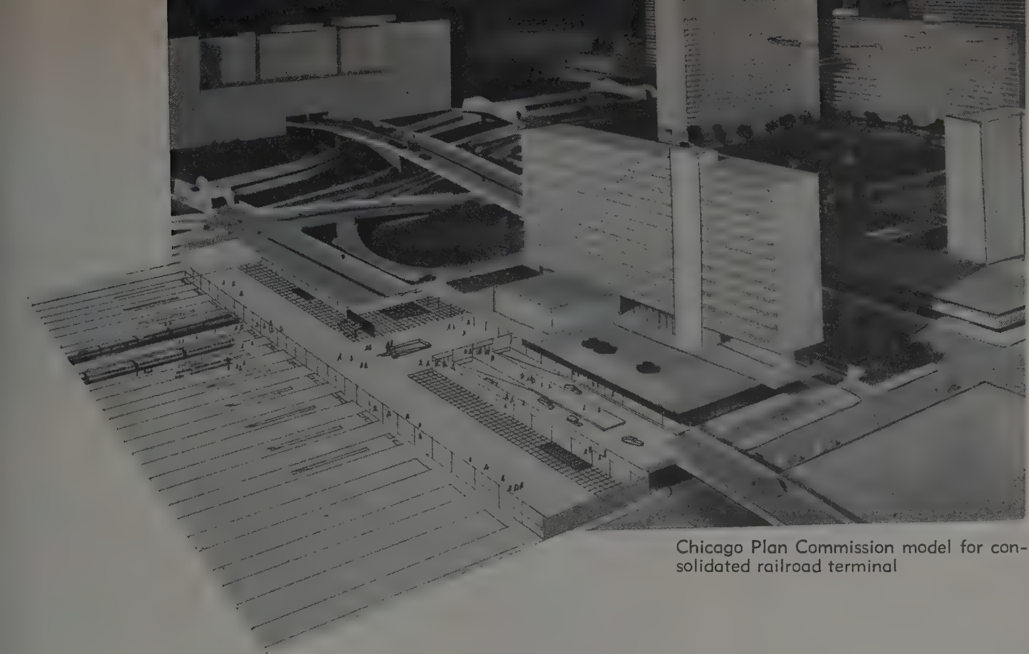
What will it be like, this Chicagoland of tomorrow? How will its
zens live and work and move a
their daily pursuits?

Today's toddler may well fly t
first job by helicopter, for helip
will be dotted throughout the m
politan area. But whether he fli
uses more conventional transp
tion, he probably will be abl
reach Chicago's Loop in no
than thirty minutes from any p
in the area. Transportation, say
thorities in this field, will be v
speeded by completion of the exp
way system now under construc
use of median strips for rapid
transit, and incorporation in

Fort Dearborn Project proposed for Near North side



New housing for Hyde Park site now being cleared



Chicago Plan Commission model for consolidated railroad terminal

By June Blythe

le metropolitan system of many
ıe suburban transit services.
n the way in to his work, our
ıg man will pass acre after acre
ew, planned residential and in-
rial developments, all landscaped
all boasting ample parking areas
hed by broad, well lighted
oughfares.
 he rides a commuter train, he
expect to arrive at an impressive,
ern consolidated railroad ter-
al at the south end of the Loop,
 likely adjacent to the Congress
et expressway near Clark street.
will appreciate the quiet atmos-
e of the terminal, for all freight houses and freight handling operations will have been moved out of the area. Even baggage handling will be relegated to separate platforms, alternating with those for passengers, and he will never have to learn the art of dodging baggage trucks.

Without leaving the terminal, he will board a subway for fast connections to any part of the city, or enter a taxi at the 24-cab loading manifold, where space for an additional 125 cabs eliminates tiresome waiting. If he chooses to walk, he will cross a broad esplanade, past modern railroad office buildings.

If he heads westward, he will enjoy crossing the Chicago River, for its banks will be lined with parkways and its pleasant waters shared by pleasure and commercial boats. If his destination is to the east, he will admire the new structures in the re-

Meadows development, being constructed by New York Life Insurance Company
hicago Land Clearance Commission site

One of four 21-story buildings being completed at Lake Meadows

One of Chicago's historic public works, locks at entrance to Chicago River, reversed by the Metropolitan Sanitary District in 1900

development area along south Clark, Dearborn and State streets.

He will see new government and office buildings flanking the historic City-County Building. If his wife has accompanied him for a shopping tour, she will leave him near the west side of State street to ride an escalator that will take her to a moving sidewalk in an enclosed pedestrianway connected with all major buildings.

Mrs. Suburbanite will select her merchandise from samples, and her order will be filled by electronic devices, wrapped and waiting at the end of her shopping expedition, or delivered to her home anywhere in the metropolitan area the next day. She will choose more whites and pastels, because Chicagoland air will be largely freed from smoke and dust, thanks to increased use of electricity produced by atomic power.

At lunch, she may join a friend who is a confirmed city dweller and prefers to live in an apartment on one of the new artificial islands in Lake Michigan, a little offshore from the new Lake Shore drive, which by then may extend from Evanston to the Calumet Expressway. The two young housewives will enjoy the thoroughly cosmopolitan milieu of the restaurant, filled with conversation in many tongues by travelers from around the globe, brought to the great Port of Chicago via the completed St. Lawrence Seaway or the rapidly expanding international air service.

Pedestrian Concourse

After lunch, the pair may descend a moving ramp to the underground pedestrian concourse. Here they will relax for a few moments, watching closed circuit color telecasts of fashion showings and displays of merchandise brought to State street's international retail mart from the four corners of the earth, fresh off the ships docked in Lake Calumet or at the enlarged Navy Pier.

They will board an electronically controlled special subway train, without motorman, which will whisk them to Chicago's new civic cultural center, perhaps in the new Fort Dearborn Project just north of the C cago River, for a matinee of ope or ballet. If Mrs. Suburbanite cides to stay in town for dinner, s will check the baby-sitter and ma sure of Junior's safety by means her telephone television attachme

Her husband may be leaving o business trip, so he will meet her dinner at one of the roof-top rest rants in Fort Dearborn. He mi describe to her some of the exhib he saw that afternoon at the n Convention and Exposition H Over coffee, they will look out o vista of taller buildings, covering i ground area, and leaving room light, air and planted parkways. H hubsand may explain that factor too, in the planned industrial s tions to the west are following trend toward higher buildings a more green space. The efficient a much desired "one-story factori will be placed on top of one anoth with freight cars lifted from railr sidings to appropriate docks seve stories high.

The husband and wife will from Fort Dearborn's Wolf P

Chicago's newly remodeled Central Office Building consolidates quarters of several city departments

All Chicago water will be filtered when this new $80 mi filtration plant is completed in 1961

rchitect's drawing of Chicago Park District's new Avalon Park Fieldhouse, to be completed next year

Modern fire station, housing two companies, at 3945 Peterson Avenue

Chicago Housing Authority project, Prairie Avenue Courts

liport directly to his plane at Chi-
go's new, third major airport, per-
ps in the Calumet region, for
Hare Field will have reached its
pacity five years earlier. The heli-
pter will bring Mrs. Suburbanite
ck to the roof of the consolidated
terminal in Chicago, near the
lroad terminal, and she will start
e brief journey home. She may
ke a ten or 15 minute trip via
in or mass transit to one of the
w metropolitan parking inter-
anges ringing the city and made
ssible by joint planning of sub-
ban, county and Chicago authori-
s.

During her short drive and at
me, she will feel reassured by the
operative law enforcement worked
t among all police agencies in the
etropolitan area. The same metro-
litan cooperation will insure that
r home stands on a well drained
e, with ample storm and sanitary
wers. And her lawn and flowers
ll flourish with abundant supplies
pure, filtered water.

This way of life that awaits the generation already born is, itself, already in the making. A composite picture, it is drawn from the predictions of experts who are working now on the development of the metropolis of the future. Characteristically, Chicago leaders waste little time on space-ship fantasies, but prefer to concentrate their efforts on what can begin today.

The guns of World War II had barely quieted when the city's planners — and in Chicago that includes everybody from neighborhood block groups to company presidents — dusted off their blueprints and got to work.

First project was the unplugging of parking and traffic bottlenecks, started in 1946 with a study financed jointly by the State Street Council and the Chicago Association of Commerce and Industry. Results and recommendations were submitted to the City Council in 1949, and after an investigation of financing possibilities, a $50 million issue of Parking Facility Revenue Bonds was authorized in 1952. Today the first three phases of the program are virtually completed, with nine downtown multistory garages, one north side garage, and 32 outlying parking lots, accounting for $27.5 million of the bond issue. Another $13.5 million in bonds now have been sold to construct the fourth phase of the program, leaving $9 million for such additional facilities as the city's growth may indicate. Supplementing this program is the Chicago Park District's Grant Park garage, the world's largest underground parking facility, with a capacity of 2,359 cars.

Simultaneously, in 1946 the city

(Continued on page 204)

Transportation Services Push Forward

Expressway and transit programs rushed to meet area growth

Calumet Skyway Toll Bridge at juncture with Indiana Toll Road

Rapid transit median trip in Congress Superhighway

CHICAGO'S transportation ser
ices are heading for extensiv
improvement. The course is b
ing charted by many planning age
cies — local, state and federal — an
the thoroughness with which th
city's needs are being analyzed pr
sages a correspondingly complete ar
long-range program.

The Chicago Area Transportatic
Study, a $1,850,000 project financ
jointly by the federal, state, coun
and city governments, is compili
information that will enable pla
pers to look ahead for the next qua
ter century. Some data from this u
dertaking are just now beginning
become available, but it will l
nearly two years before the study h
collected and electronically analyz
all the data it set out to obtai
However, Chicago will not have
wait two years for substantial i
provements in its traffic congestio

As in cities everywhere, large an
small, Chicago's transportation pro
lem is caused by the enormous i

City Parking Facility No. 6 on Near North side, one of nine new garages in downtown area

Wacker Drive Parking Facility, No. 2, brings city-own downtown car spaces to over 9,000

By Fletcher Wilson

ase in the number of automobiles l the preference of too many perns for driving their own car rather an using public mass transportan. The private automobile takes siness, and needed revenues, away m the mass transportation agens, causing them to raise fares l/or curtail service, which in turn courages more customers to drive ir own cars. The private automoes clog the streets so that at times thing moves faster than a walk. ses, which have taken the place of except one streetcar line in Chigo (ostensibly to dodge around ffic, but actually to cut capital restment and maintenance costs by ng the public right of way) are wn to four miles an hour at some ces during rush periods, the Chigo Area Transportation Study disvered.

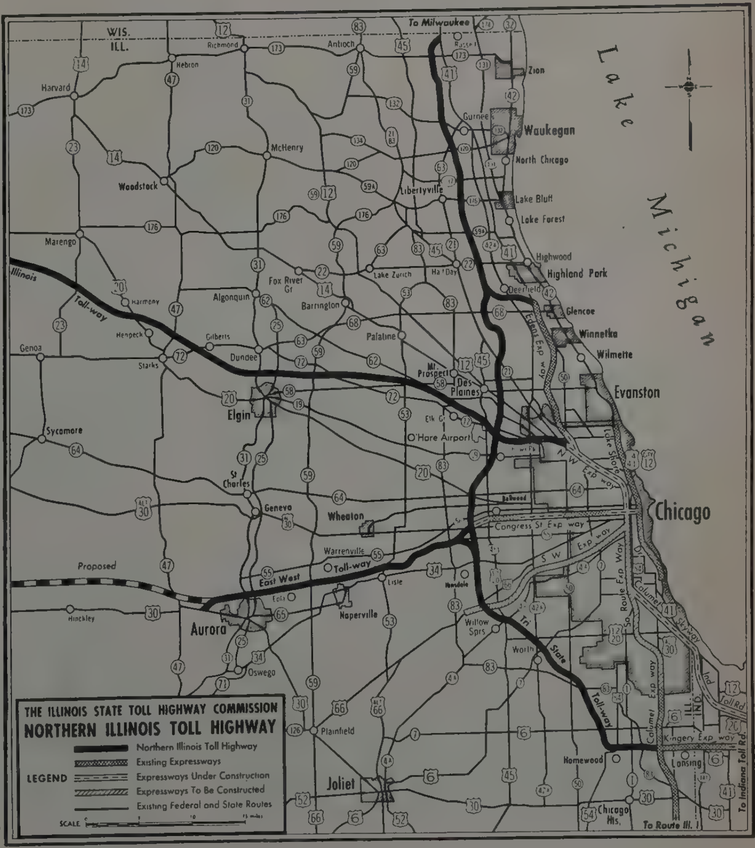
What Lies Ahead?

But that's an old story. What lies ead?

The Chicago Transit Authority s a $314,000,000 improvement and pansion program for the next 15 ars. Meanwhile, Chicago and subban residents will benefit from new pressways. Experience has been at as soon as a highway opens it arms with traffic that had not been pected to develop for another 20 ars. But in Chicago's expressways, edian strips devoted to fast mass ansit will, it is believed, attract any people who otherwise would ive their own cars. The median ips, or in some instances an area the side or underneath the exessway, will be devoted exclusively electric trains or express buses.

The Congress Street, Northwest d South expressways, already in rious stages of construction, will ve tracks for CTA trains. Southst expressway, the next to be ckled, will have a segregated lane the median strip for express buses. nus, really rapid transit will be

Model of rest stop, with restaurant spanning traffic lanes, for new Illinois Tri-State Tollway



Twin Bascule bridges of Congress Superhighway

Congress cloverleaf interchange with Wacker Drive

available from all directions into the Loop. Congress street will come in from the western suburbs; Northwest from O'Hare Field, Chicago's International Airport; and the South expressway from connections with roads reaching into Indiana.

The Southwest expressway, to be built largely in the bed of the abandoned Illinois-Michigan Canal, will tap industrial and residential areas expected to be boomed by widening of the Calumet-Sag channel. Northwest and South expressway traffic will reach the loop by feeding into Congress street at Halsted. The Southwest expressway will run into the South expressway.

Median strip rapid transit treatment also is planned for an eventual Crosstown expressway running north and south between the Congress street and Northwest expressways, in the middle of the west side.

The prospect of combining highways and mass transit is an exciting one. Only unwillingness to push forward imaginatively can take the tingle out. Chicago never has lagged in imagination, although sometimes the realization has been slow in coming. Subway cars of the present type will be running in Congress street from the Loop to Laramie avenue next year. Tracks are being laid now. Extension of the highway and the tracks to the edge of the city at Austin avenue will follow shortly. Getting beyond there through suburban Oak Park awaits the solution of certain problems.

Northwest expressway also is scheduled for completion in 1959, but the city, county and state highway agencies building it concede that sche ule is optimistic. The South route supposed to be ready in 1960, b again no one is placing any bets. N timetable has been set up for t Southwest expressway, and the Cro town is yet to reach the prelimina design stage.

Mr. Gunlock is talking about e tending the Milwaukee - Dearbo subway from Logan Square into t Northwest expressway, with an initi terminal at Central avenue. Millio are being spent to widen the right way to accept tracks from there out to O'Hare Field. Mr. Gunlo does not envision that extension years to come. He does not belie enough airport users will want pub transit to make it pay. Mayor Dal of Chicago has a different view. H

(Continued on page 219)

Proposed parking-transit terminal for fast commuting

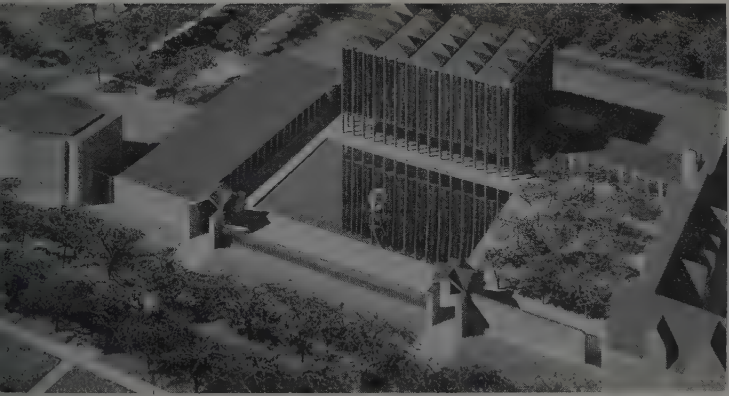
New CTA cars replacing existing equipment

Above: proposed DePaul University Library building, which will include faculty and student research rooms

Left: Wheaton Community High School typifies modern schools being built in area. Perkins and Will, architects

Schools Prepare for Big Enrollments

Techniques of teaching change to meet new age



del of University of Chicago Law School designed by Eero Saarinen

HOW do you teach children to live in a jet age? That provocative question, posed by hropologist Margaret Mead, sums in a single query the importance l the complexity of the job facing nmunities and schools.

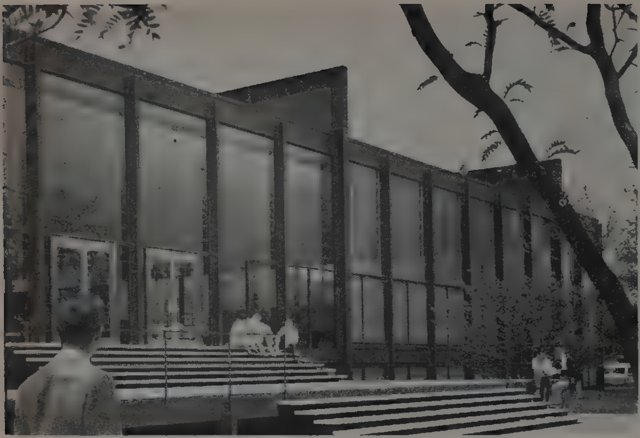
t serves, too, to command attention m the mesmeric blueprints for the ure, concerned with steel and ms and solar energy. What men- and emotional equipment will today's children need to function in an era of automation, high production and shrunken work weeks, a longer life span, and a world in which the concept of distance will have all but disappeared?

Chicago supplies a peculiar vantage point from which to explore the answers, for here, just as with the area's industry, has developed the world's largest aggregation of varied educational facilities.

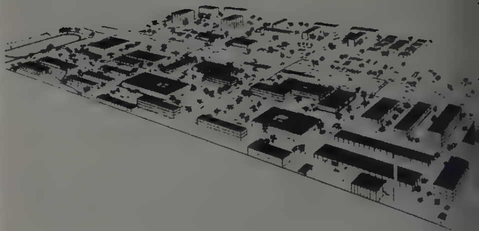
There is general agreement among Chicago educators on the dimensions of the problem:

1. Tomorrow's adult must have more education, quantitatively, to earn a living twenty years from now. The premium on more training already has begun to express itself in today's employment figures and job opportunities. By and large, the greatest employment demand is for the best trained applicants; and, conversely, the preponderance of unemployment is among the least trained. In the years ahead it will be difficult if not impossible for any sizeable number of the unskilled to find employment.

2. The increased amount of education also must be deeper, qualitatively, to fit tomorrow's citizen to cope with a vastly more interdependent world and with such societal factors as an older population, another big jump in leisure time, and perhaps larger and more com-



Crown Hall, Illinois Institute of Technology



Technology Center, Illinois Institute of Technology, as
will look 10 to 15 years from now when present develo
ment program is completed

Drawing of proposed Red Oak School, Highland Park, Illinois

Chicago's new Dunbar Vocational High School

New Walther Lutheran High School, Melrose Park, Illinois

plex units of government. Interco
tinental air travel will be commo
place; exploration of outer spa
will, at the very least, be more fr
quent.

3. Educators must solve the pec
gogic problem of how to select th
which is relevant from the huge a
rapidly increasing body of know
edge, and teach it functionally, wi
obvious and purposeful relation
a new age. Man has learned mo
since the turn of the century th
in his entire previous existence, a
the pace of discovery continues
accelerate. As one educator has p
it, the "three R's" may well be
placed by the "three C's" of co
prehension, creation and commu
cation.

4. In addition, the schools mu
prepare to educate more children,
more buildings, with more teache
By the school year 1977-78, the nu
ber of college-age youth in the C
cago metropolitan area is expect
to almost double from the curre
455,643 to 944,594; elementary a
high school enrollments are
pected to rise by some 60 per ce
from approximately 850,000 at pr
ent to over 1.3 million.

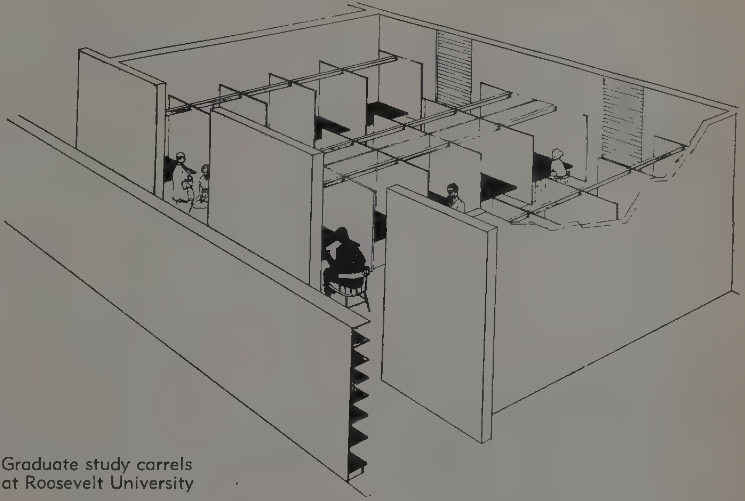
Building Programs

Chicago area schools are prep
ing to meet these enormous respon
bilities. Building and modernizati
programs are underway at all ed
cational levels.

Chicago's public schools, for
ample, are adding two new cla
rooms and two teachers every wo
ing day of the week. Since 19
$100 million has been spent
buildings, providing over 76,0

awing of Technological Institute addition planned for Northwestern iversity Evanston campus

St. Patrick High School



Graduate study carrels at Roosevelt University

ts, and another proposed $50 llion bond issue would be exnded in the next two years. At e same time, the budget exclusive building has risen an average of per cent every year for the past n years.

The Chicago Board of Education w maintains 423 schools, of which new buildings and 42 additions to isting ones have been completed ce 1952. Included are 360 eleentary schools, with 44 branches; high schools, with ten branches; ır vocational elementary schools; evening schools; one junior cole with four branches; and a teach-' college with two branches. Unr construction are 13 new buildgs and 10 additions; in the design ge are 14 more new schools, inıding three high schools, and seven ditions. Bugeted but not yet in e planning stage are another six w buildings, seven more additions, d eight major rehabilitation proams for existing structures.

Enrollment, which now stands at 3,000 in the elementary and high ools, has been rising about 10,000 year for the past six years, and mped to a 16,500 increase for the ool year just ending. An average 12,600 more pupils per year is ected over the next five years.

Dr. Benjamin C. Willis, general perintendent, anticipates that the ool population will level off at out a half-million. This is content with the projected populan growth for the city of some 5 per cent.

Chicago's continued industrial growth will require more vocational training, Dr. Willis feels, and he foresees more schools like the new $7 million Dunbar Vocational High School, "to prepare Chicago citizens for their roles in an expanding industrial heartland."

But Dr. Willis emphasizes that the curriculum of the future, including that for vocational and trade schools, will offer "greater depth" and increased emphasis on science, mathematics and the humanities. He adds that by 1975, "the individual will have an increasing awareness of government and what it means to accept the responsibilities of government. This means more than just voting — it means serving in government." He foresees, also, "vast advances in the field of human relations."

Chicago public schools also hope to play an increasingly important part in family and neighborhood life. Dr. Willis feels that the "lighted school program" will expand, with more and more families using school facilities for recreation and evening classes after regular daytime hours.

(Continued on page 212)

Night view, Chicago Temple spire

Nativity of the Blessed Virgin Mary Roman Catholic Church

Churches Surpass Chicago Area Growth

By Stanley Pieza

MORE than a million persons may be added to church rolls of all faiths in the next 15 to 20 years in metropolitan Chicago. This prediction is based on the expected population increase, and on the religious renaissance, evident in Chicago as it is throughout the nation.

Protestants of this area expect to gain at least 620,000 persons in the congregations, while the combine Catholic gain may reach 700,000 t 800,000.

Membership Gains

The Chicago church membershi gains reflect the increase of churc members in the United States. Fo the first time in history church mem bers this year number more tha

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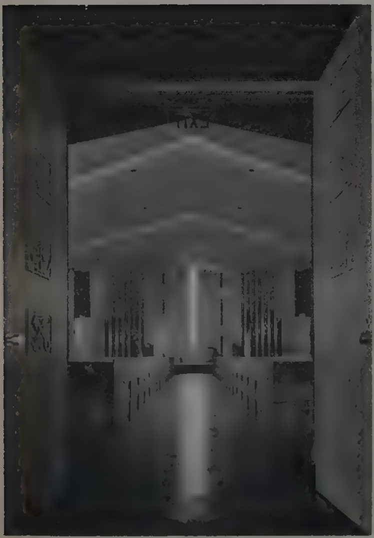
The author is religion editor, "Chicago American."


Elliott Chapel of Presbyterian Home, Evanston

St. Andrews Lutheran Church, Park Ridge

Rockefeller Memorial Chapel on the University of Chicago campus

million nationally. Church mem-ship gains last year again out-pped population gains, continu- an upsurge that goes back to rld War II. There are 2.8 per t more church members as against per cent more people.

There are 305,449 local churches the United States, representing increase this year of 5,393 or 1.8 cent, according to the National uncil of Churches.

Of the more than 100 million per-s with religious affiliation, 58.4 lion are Protestant, 33.4 million Roman Catholic and 5.5 million Jewish. In addition, there are million members of Eastern hodox churches in this country. Total membership shows that 60.9 per cent of Americans have some religious affiliation, the highest percentage on record. By comparison, it was 57 per cent in 1950 and a hundred years ago less than 20 per cent of the American population belonged to a church.

Chicago Average

A recent survey reveals that the average holds true for Chicago. Some 60 out of every 100 Chicagoans have some religious affiliation.

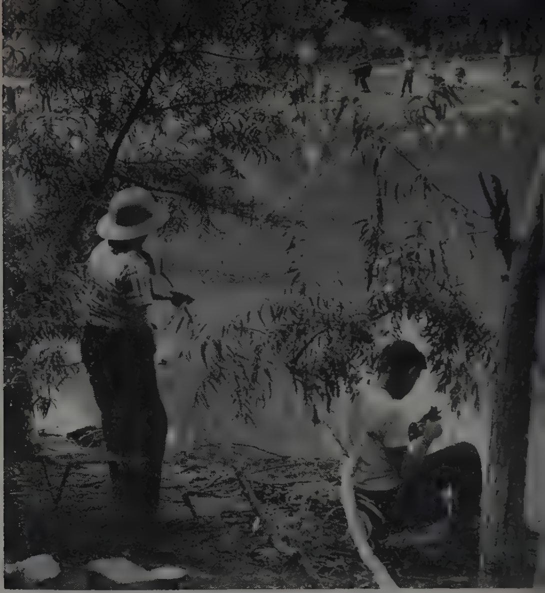
In view of the expected increase, the Church Federation of Greater Chicago, representing major Protest-

(Continued on page 134)

The new Chicago loop Synagogue

heran Church of the Good Shepherd, Palos Park

Mater Christi Church, North Riverside



Forest Preserve waters offer popular fishing spots

Chicago

Playground for Sportsmen and Spectators

CHICAGO'S prominence as a center of trade, tra port and industry sometimes overshadows t happy fact that it is also one of America's great playgrounds. The same natural attributes that over hundred years ago attracted the Potawatomi Indi councils — luxuriant woods, varied terrain and abunda waterways — have been preserved and enhanced by pa and forest preserve authorities to provide for alm every kind of recreational interest.

Unusually rich in large parks and wooded preserv

Left: Seal-feeding time at world-famous Brookfield Zoo

Below: Brookfield's African antelopes, the Greater Kudu

All winter sports are available in Chicago's Forest Preserves

bad, star performer at Lincoln Park Zoo

Boating, one of Chicago's fastest growing sports

ults may watch, but only boys and
ls may enter at Lincoln Park Chil-
n's Zoo

Scene on one of Chicago's 13 beaches

A close finish at Arlington Park track

United Press Photo

Junior Basketball League, Chicago Bureau of Parks

Chicagoland offers space and facilities for sports, hobbies or quiet relaxation. The world famous Cook County Forest Preserves ring the city with 44,000 acres of publicly owned "country estates," easily accessible to Chicagoans and suburbanites alike, and believed to be the largest public recreational lands in any metropolitan center.

Within the city limits the Chicago Park District maintains over six thousand acres of parks, including such popular attractions as the Lincoln Park Zoo, Adler Planetarium and the Grant Park outdoor concerts. Some 300 facilities, from smaller parks and playgrounds to swimming pools and community center are administered by the city Burea of Parks and Recreation, which h five new playgrounds under co struction and is acquiring land f fifteen more.

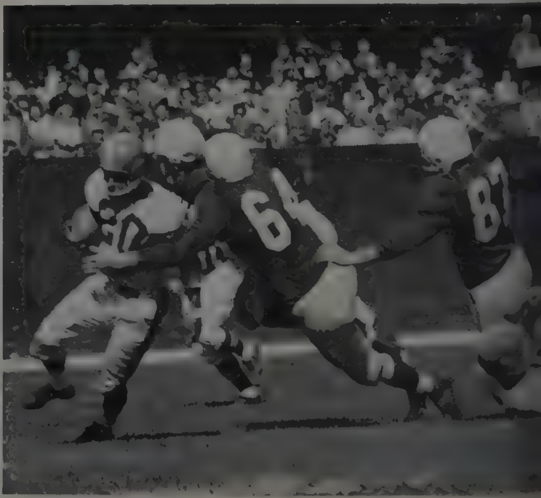
Water Sports

Nature and a far-sighted set c founding fathers endowed Chicag with a location that gives water spo lovers a broad array of choices, fro inland lakes and fishing strean through rivers and the Chain C Lakes region to mighty Lake Mich gan. The city is one of the few i

(Continued on page 246)

Music for the whole family at Grant Park summer concerts

Chicago Cardinals enroute to a victory at Comiskey Park



rance (top) to Midwest Inter-Library nter and specially designed roll-out cks

The John Crerar Library

Chicago Libraries Grow As Aid to Management

By June Blythe

VITHIN the next two decades an ancient but unobtrusive profession is slated to emerge m its quiet quarters to sit at the it hand of management. The arian, long the pillar of scholarship, is fast coming into his own as an indispensable resource for business and industry.

Today many an executive or research decision in Chicago area companies is predicated on a librarian's report, and with increasing frequency its author is called to the conference room. Tomorrow, the librarian likely will join the top-level brainstorming in person.

The widening recognition of libraries as tools, and librarians as the skilled craftsmen thereof, springs from necessity. Modern man is perilously close to foundering in the seas of his own accumulating knowledge. The body of recorded information grows so huge, and so numerous are the publications which swell it yearly, that executive and researcher alike are threatened by inundation.

Today's executive must spend the equivalent of half the normal work day just in his efforts to keep up, says the American Management Association. A new A.M.A. study finds executives "spend at least four hours a day perusing business reports and correspondence, books, newsletters and business magazines."

Nor has the researcher any advantage, however highly specialized his

(Continued on page 222)

Harold A. Bazazian Branch, newest Chicago Public Library extension, named in memory of donor's son

M. S. Kaplan Pavilion, newest Michael Reese Hospital addition

Chicago Looms as Brightest Star on the Horizon of Future Medical Progress

Plan for Loyola University's Stritch School of Medicine

LEADING scientists are in agreement that Chicago looms as the brightest star on the horizon of future medical progress.

In this city, they point out, is massed the greatest concentration of talent, tools and expert know-how ever assembled in selfless aspiration for the betterment of human health.

Research investigators from the earth's farthest corners admit they look constantly to Chicago for leadership, ideas and inspiration in the medical renaissance now sweeping the world. Hundreds of gifted scientists are at work here to find solutions to vital life problems. Death is their antagonist on a hundred fronts. The lights in many of their laboratories burn through the night.

From the reservoir of skills and developing knowledge these dedicated men in white are establishing, authorities predict will come new concepts for the conquest of diseases still baffling successful treatment.

Medical research, led by noted Chicago scientists, already has made great strides, says Dr. Karl A. Meyer, president of the Chicago Medical Society, and superintendent of all Cook county medical institutions. He cites successful assaults against infective diseases since the era of the antibiotics, some of which were developed in the Chicago area.

The same effective research attac
now are being directed here agai
other cripplers and killers — disea
like rheumatism, multiple sclero
leukemia, heart ailments, cancer, a
mental illness. Expanding Chica
facilities will help provide the kno
edge needed to halt these scourg

By universal acknowledgeme
Chicago is recognized as the medi-
capital of the world. It reached th
position, so the record shows, in t
few short years since 1910, when
Abraham Flexner, in his now fam
report, termed this city "the plag
spot of medical education."

Now with five Class A medi
schools, three dental colleges, a
tionally known school of pharma

The author is science editor, "Chicago Tribune."

By

Roy Gibbons

postgraduate school of medicine, us unsurpassed teaching hospitals, icago has climbed to new medical ights. Chicago has become the ider in the new frontier of medi- ie born of the atomic age, which iewise had its genesis here on De- mber 2, 1942, under the west stands Stagg Field at the University of icago. Furthermore, this city is ring to pioneer in a variety of ier health areas which include ans for realigning some angles of dical education.

This latter concept visualizes the egration of comprehensive med- l and academic training, hopeful at in many instances it can be ieved to increase the number of ghly trained doctors who will be eded by 1975 because of popula- n increases.

Needs for Future

During this future growth period, . Meyer says, medical education ilities here likely must be in- ased by 50 per cent, including at st one more medical school. "The od of World War II babies is just ginning to hit our high schools," . Meyer notes. "In another decade, s will produce an immense in- ase in the need for medical educa- n facilities, as well as a need for re doctors."

Chicago hospitals already have rted to expand their facilities. As s is being written, work has begun 45 hospitals on $45,390,000 worth remodeling and additions to pres- structures. Capital improve-

(Continued on page 164)

Photos, top to bottom: additions planned for Northwestern University Medical Center; Wesley Memorial Hospital addition; Psychiatric Institute, Illinois State Hospital; new 13-story pavilion for Presbyterian-St. Luke's Hospital

Chicago Industrial Growth To Continue a

City's multitude of advantag
put it far ahead of other are

By Charles Willson

Artist's sketch of Ford Motor Company's new metal stamping plant in Chicago Heights

YEAR after year, industrial growth in the Chicago area exceeds that of any other metropolitan area in the United States by a margin so wide that it arouses curiosity. What does Chicago have that draws so many new plants? The automobile and the motor truck have given industry mobility such as was never known before. Today a plant can operate successfully, and many do, in an isolated location far from any big city. Yet Chicago, already the largest and most diversified industrial center, continues to grow faster than any other, and promises to keep on doing so.

There's no single factor to explain this economic phenomenon. In fact, Chicago's strength lies in the fact that it has a multitude of advantages, a
one of which, by itself, would justi
the choice of this city for a new plan
In combination, these advantages p
Chicago far ahead of any oth
center.

Distribution Costs

Cutting distribution costs is o
of the major objectives of busin
and industry today, and Chicag
unequalled transportation syste
with related facilities, is one of t
most potent instruments in reduci
the expense of getting goods from t
producer to the customer. As t
center of rail, bus, truck, inla
waterway and air traffic, goods c
be shipped from Chicago to all oth
parts of the country faster and/
cheaper than from any other pla
As a consequence, retailers, ma
facturers and others can carry mi

Rand McNally & Company's new Skokie plant and office building

New manufacturing plant of Ditto, Inc., Lincolnwood, Illinois

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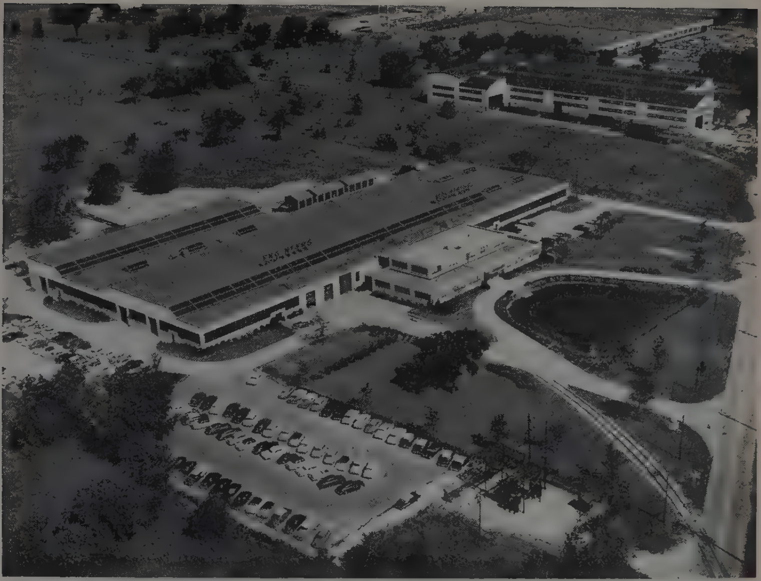
The author is director of the Industrial Development Division of the Chicago Association of Commerce and Industry.

ecord Pace

d balanced progress
d will keep it there

m inventories because replace-
nts can be obtained quickly. The
t public and private warehouses
Chicago are essential to this serv-
with the public warehouses often
ctioning virtually as part of the
nufacturer's sales organization.



Chicago Aerial Industries, Inc. Photo

Onsrud Machine Company's new plant in Niles. Note other new plants of other firms in the rapidly developing industrial area

Strategically Located

hicago is strategically located
respect to raw materials of mine,
st, and the farm, particularly be-
e many of these can be shipped
by low cost barge or lake vessel
sportation. The great steel indus-
at the end of Lake Michigan is
e primarily because of the low
at which steelmaking essentials
be brought to the furnaces.

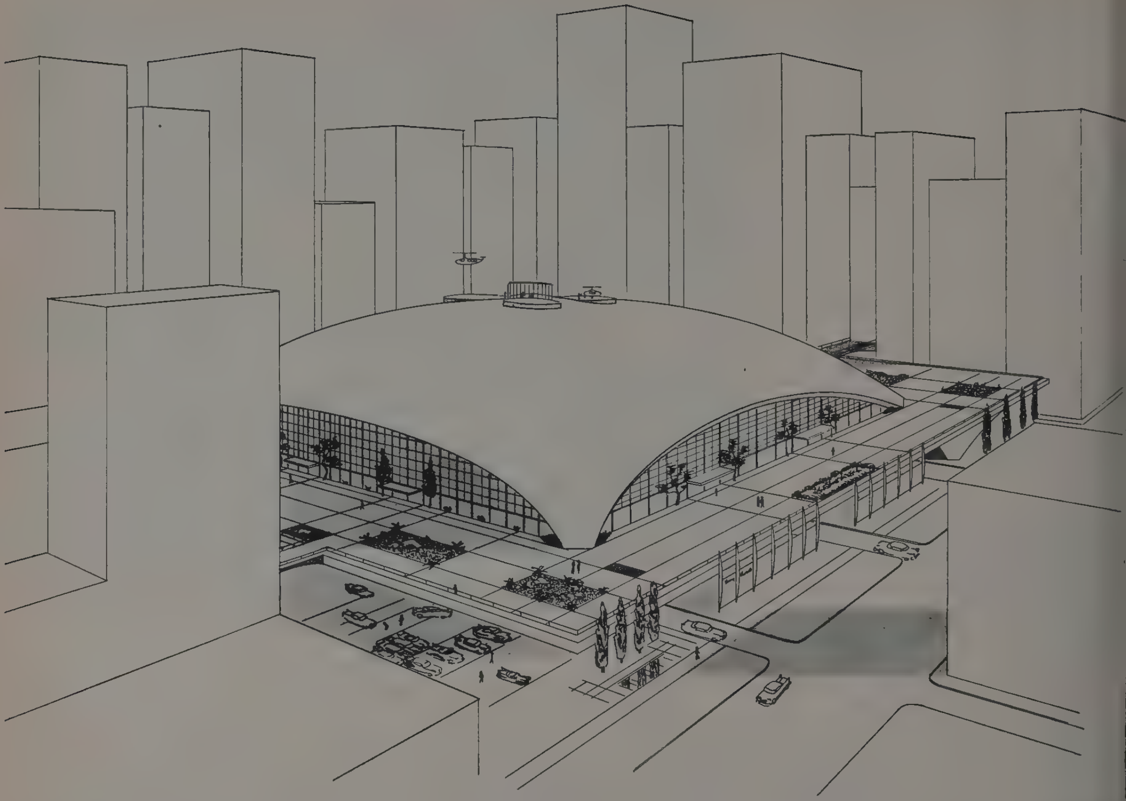
ransportation was the most im-
tant element in Chicago's prog-
while other nearby and older
munities lagged far behind, and
the importance of the city's advantages in transporting goods and people has never diminished. But the great steel mills and other industries have themselves become magnets drawing countless new plants to the Chicago area. Large users of steel have found it economical to establish plants close to the Chicago area steel mills, for example. Chicago is a petroleum refining center, and users of the by-products of this industry have moved close to the source of supply.

Chicago's pool of skilled craftsmen is the largest in the nation, and an irresistible attraction to manufacturers. The city's extensive research facilities, and its virtually unlimited resources in other services and skills, are not approached in any other industrial area. For plants requiring large quantities of water, Lake Michigan overshadows every other consideration in the selection of a plant site.

Physical assets alone, however, could never account for Chicago's growth or assure that it would con-

(Continued on page 104)

W. Kimball Company's new plant for production of its line of pianos



Tomorrow's downtown shopping center will boast moving sidewalks, roof-top heliports, ample parking. Design by H. Creston D
Libbey-Owens-Ford Glass Company

Chicago Growth to Swell Retail Busines

Total sales will grow from $8.3 billion to $12.5 billion in next decade

LOOK for the following developments in the Chicago Metropolitan Area's retail trade over the next ten years.

1. Total retail sales will grow from $8.3 billion (1956) to $12.5 billion by 1966, or more than 50 per cent. The number of stores will grow from 58,000 to 75,000 over that same period, or 29.3 per cent. Individual stores, on the average, will be larger.

2. Many older business districts will take on new life and increase their share of the Metropolitan Area's retail trade.

3. There will be a lull in construction of new shopping centers. Those now in operation or in process of construction will compete strongly among themselves.

4. "Fair Trade" prices dictated by manufacturers will largely if not completely disappear.

5. Supermarkets will add many soft goods lines and will become modern versions of the old-time general store.

6. Prestige appeal instead of pocketbook appeal will become the dominant theme in most retail advertising.

Let's examine the validity of these predictions in their order.

Why will sales go up? Why will the number of stores increase substantially? Largely because of increased population. About a lion and a third more consumers be residing in the Chicago M politan Area by 1966 than live today. In recent years the city been adding about 31,000 to population per year and the urbs about 107,000 per year. growth will in all probability celerate. Metropolitan Chicagc 1966 may have a population app mating 7.2 million persons as pared with just over six mil today.

This estimate is higher than of the Chicago Community In tory which figures that the area add 690,000 persons by 1965. If

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The author is director of the commercial development division, Chicago Association of Commerce and Industry.

By Paul Kunning

er estimate proves to be the more urate it will still be like adding waukee to Chicago. Included ld be all of Milwaukee's doctors, yers and dentists; its nurses, its achers, and its teachers. Also, all ts 12,000 stores, including 2,000 d stores, 3,000 eating places, 12 artment stores, 502 furniture and ne furnishings stores, 305 auto lers, 354 drug stores, 212 women's arel shops, 160 shoes stores, 122 's and boys' stores, and numer- other kinds of stores. If the er estimate proves correct you double the foregoing figures.

hree waterway developments under way — the St. Lawrence way, the Cal-Sag Channel im- vement and the Port of Chicago Lake Calumet — are expected to duce the greatest commercial, in- trial and population boom Chi- has ever experienced.

Job Opportunities

y 1975, enlarged overseas trade expanded water transportation rations will in themselves pro- job opportunities for 140,000 itional workers. Industrial wth along the Cal-Sag Channel provide an estimated 300,000 in the new factories erected e. Four hundred and fifty thou- d additional jobs will result from rrelated developments, including ansion of present industries to e the new industries, and ex- ded retail, wholesale and service les to serve the increased popu- on.

n brief, the grand total of new which can result directly or in- ctly from the three waterway jects, is 890,000. This impressive mber of new workers, on the basis he present ratio of jobs to people the area, can support an added ulation of approximately 1,900,- persons (by 1975).

hicago's ever expanding air traf- will also contribute substantially he population growth. Last year fourth of all the nation's air sengers, some 8,750,000 persons, sed through, deplaned, or origi- ed in Chicago. It is estimated that the total will increase to 14½ million passengers by 1960 and 22 million by 1970. More air traffic at Chicago means more jobs. More jobs mean more purchasing power and more business for the stores serving the added workers and their families.

If a million or more persons are added to the Chicago Metropolitan Area population by 1966 the area's retail fraternity will fare well indeed for Chicagoans, in common with their fellow Americans, spend about 57 cents out of each dollar of their personal income in retail stores. In good times the figure runs as high as 60 cents and in bad times never less than 55 cents.

By 1966 the Chicago retail trading area will extend roughly 50 miles from the central business district. Today it is encompassed by a 35 mile radius. State Street stores can expect to attract their share of the trade of people living in this extended area. State Street, as for many years past, will continue to be the

(Continued on page 252)

Eden's Plaza, 24-store shopping center at Wilmette

Old Orchard, Marshall Field and Company's Skokie Center

City's Importanc

Two planes of the future. Top: a Lockheed Electra which Braniff will use. Bottom: a DC-8 jet liner to be introduced into service in 1959 by United Air Lines

THE dawning of the Jet Age two years from now will propel Chicago into a new aviation boom that will lengthen its lead as the nation's No. 1 air transportation center.

"The air transport industry has staked its future on the jet airplane, and the center of the jet age will be Chicago," predicts Curtis Barkes, vice president of United Air Lines.

"Service by fast jet aircraft will magnify Chicago's importance as the midwestern air gateway for perimeter communities in Illinois and nearby states as well as for the growing air traffic from the city itself," says Bonham M. Fox, American Airlines' district sales manager here.

Make Debut in 1959

Due to their debut in regular scheduled airline service in the spring of 1959, the big jet planes will carry more than 100 passengers at speeds up to 600 miles an hour to slash flying time on the heavily traveled routes from Chicago to the east and west coasts and overseas points.

Thrust forward by the rush of hot gases out the rear of four high-powered turbine engines, the jets will cover the 1,750 miles from Chicago to Los Angeles in less than 3½ hours, compared with 5½ hours for the latest piston engine, propeller-driven planes now in operation. Travelers will fly the 725 miles between Chicago and New York in only 1½ hours, as against the present 2½ hours, while Chicago and London will be only 8 hours apart.

The jets' advantages over today's 365-mile-an-hour piston powered planes in terms of speed, range, and quiet, vibration-free riding quality, are the principal support for forecasts that the airlines' volume of passenger business will about double in the next decade.

William A. Patterson, United Air Lines president, believes the airlines will account for more than half of all intercity common carrier passenger traffic by 1965, compared with 36 per cent in 1956.

The Civil Aeronautics Adminis
tion estimates that the number
domestic passengers nationally
rise from last year's total of 42
lion to 93 million by 1965 and
million by 1970. And U. S. inte
tional and overseas airlines' rid
numbering four million last y
will increase to 8.9 million in 1
and 11.5 million five years later,
cording to the CAA.

Chicago's Traffic in 1965

In 1965 some 19.2 million trave
will be using Chicago's two m
airports — Midway, currently
busiest in the world, and O'
Field (Chicago International
port), the world's largest in are
which together handled close to
million passenger arrivals and de
tures last year, equivalent to al
one-fourth of all passengers car
by U. S. airlines.

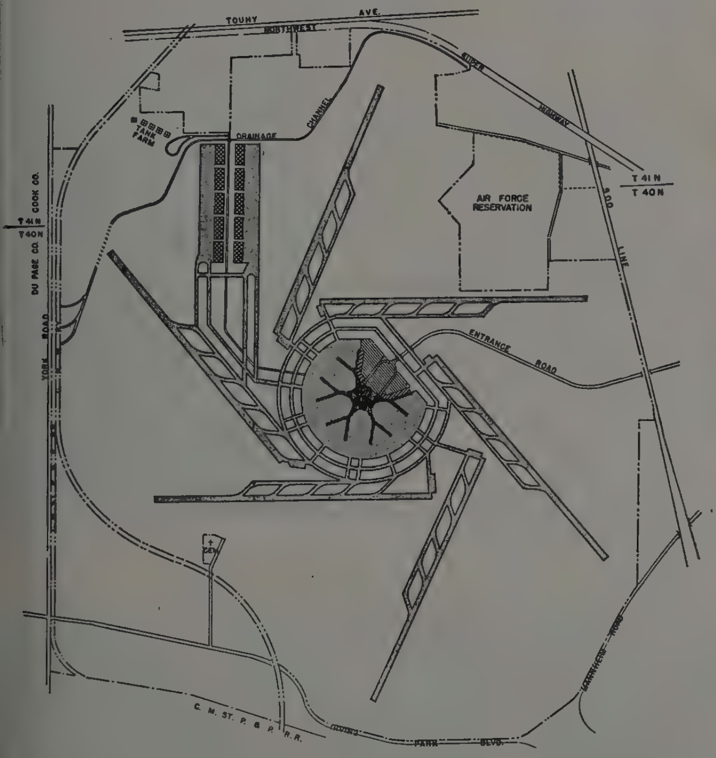
That projection by the city's
reau of aviation reflects an an
pated gain of about ten millio

s Air Center To Grow With Jet Age

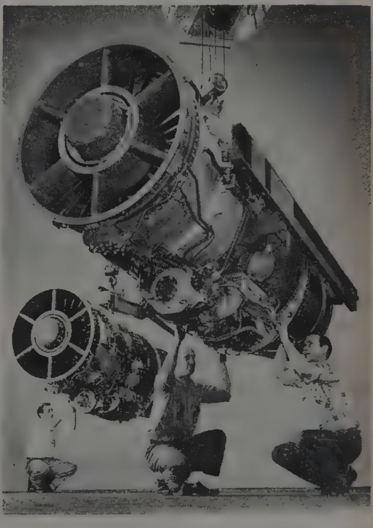
By
Allen Van Cranebrock

Above: The Boeing 707 jet transport prototype. It will be used by many of the major airlines

Below: The master plan for O'Hare International as it should be when completed



Drawing courtesy of Ralph H. Burke, Inc.



Pratt & Whitney Aircraft turbojets being prepared for shipment. They are the type used on the Boeing 707 shown above

are and a reduction of 700,000 idway. The latter airport, where 1,930 persons arrived and de- ed last year on an average of e than 1,000 daily flights, is con- ed crowded far beyond its capac- to accommodate travelers comfortably and conveniently, and the airlines are gradually shifting more of the Chicago flights to O'Hare.

Opened to scheduled passenger operations October 30, 1955, O'Hare handled 723,296 passengers in 1956, when the average number of daily flights reached 90. This year the flight total is slated to increase to at least 150 a day.

When the jets go into service, O'Hare with its longer runways, 6,325-acre area and comparatively spacious terminal facilities, will take all the jet flights, while Midway, cramped for space in which to expand, will be the base for the reduced volume of piston and turboprop service.

Nine of the country's 12 domestic trunklines, along with six international carriers, now serve Chicago,

(Continued on page 242)

The New York Central Aerotrain built by General Motors

Revolution in Railroad Traffic, Servic

IN a huge, hushed, temperature-controlled room in the Chicago headquarters of one of the nation's largest railroads, an engineer in white shirt and tie watches a series of tiny lights march across a corner of a control panel. His hand moves to an intricate console and pushes a button. More than 1,000 miles away on a windswept Colorado plateau a main line switch moves; a 110 mile an hour passenger train rushes around an 80 mile an hour freight.

Central Control

The onrush of dozens of other trains is being marked back in Chicago by marching lights on the panel. More buttons are pushed. A high green signal flashes on the main line in Texas. A switch moves in Iowa. A red signal flashes in California. A mere handful of men in a central control room, with the help of electronics, relays, microwaves and transistors, are controlling train traffic in a dozen states.

This is a peek into the future, but centralized control over an entire railroad system is no pipedream. It's only one of a number of startling developments in electronics and research that foreshadow giant strides in the next decade in railroad technology, traffic and service. Already centralized traffic control systems are in operation on limited sections of a number of railroads. Railroads of 1967 likely will be operating many electronic freight yards, locomotives more efficient and powerful even than the mighty diesel, and freight and passenger cars radically different than the bulk of today's fleet.

The Chicago metropolitan area and the railroad industry grew up together before the turn of the century. The area long ago became the biggest railroad center in the nation because of its strategic geograp
and economic location. For th
same reasons it continues today
be the hub of a 221,000-mile railr

Loading autos on the Rock Island li

Rail-Trailer Company's piggyback terminal in Chicago

"Ribbonrails" enroute on the Santa Fe System

The Rock Island Jet Rocket, the first lightweight train to actually operate in revenue service

nd Technology Coming within Ten Years

Chicago has big stake in future rail developments

By Louis M. Kohlmeier

ork that plays a large part in g together every region of the try into an economic whole.

reater Chicago's stake in the present and future of the railroad industry is big. It's big because an adequate and expanding distribution network is vital to the future expansion of industry here and because the size of the railroad industry makes it an important part of the area's economy.

The Chicago Terminal District spreads over 1,750 square miles — an area larger than Rhode Island — in which 41 railroads operate 7,869 miles of track. The district runs from Waukegan on the north through Eola and Joliet on the west and to Porter, Ind., on the east. The district loads about four per cent and unloads about seven per cent of the nation's total freight car loadings. It handles about 17 per cent of all U. S. railroad passenger traffic. The railroads of the district employ some 75,000 persons and their payrolls add up to about $355 million yearly.

Since the days when Chicago and the railroad industry were young, new and important forms of transportation have come to the fore. In part they are competitive with rail freight movement but they also are complementary in this century of vast economic and industrial expansion. Trucks are moving goods generally in smaller quantities and over shorter distances but more quickly than the railroads. Barges on the inland waterways are moving huge

traffic on Santa Fe's line between
o and Stockton, California is con-
d by this equipment in Fresno

rolling freight cars in Blue Island yard of Indiana Harbor
Railroad

A Chicago and North Western suburban train with new double deck cars

View of Burlington equipment at freight yards in Cicero

Milwaukee Road's big Galewood l.c.l. freight transfer in Chicago

quantities but at a slow pace that makes this form of transport particularly adaptable for raw materials. Pipelines also are moving vast quantities of specialized types of products such as petroleum.

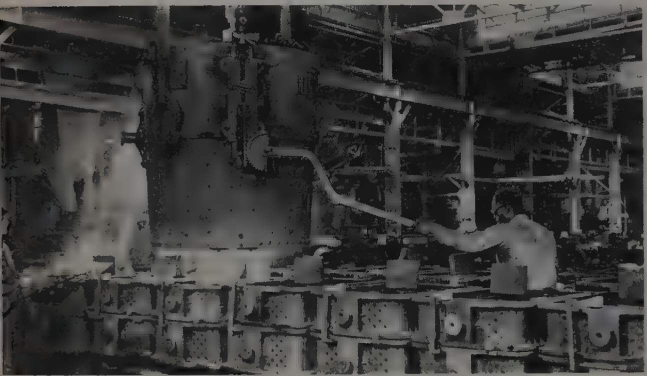
Railroads continue to be far and away the most important single transport agency for freight and there is every reason to believe they will continue to hold that position through the next decade and longer. The growth of the U. S. economy since World War I has been nurtured by the new forms of transport as well as by rail transportation, and all forms of transport in turn have benefited from the growth. "Since our economic system is inseparable, the benefits which flow from progress touch every segment of it," Interstate Commerce Commissioner Anthony Arpaia observed recently.

Railroads are carrying some 48 per cent of all the freight moved in the U. S. The next largest transport agency, motor trucks, handles 19 per cent. Waterways, including Great Lakes carriers, move 17 per cent a pipelines move about 16 per ce Air freight is responsible for less th one-half of one per cent.

In absolute terms, railroads n are moving more volume than forms of transport handled in 1 and nearly twice as much as the r roads alone handled in that year. 1955, the latest year for which ex figures are available, the railro moved some 625 billions of ton-m of freight, as compared with 245 lion carried by trucks, 225 bill moved on waterways, and 196 bill by pipeline.

A number of recent studies in cate that railroad freight traffic o the next decade will grow at le proportionately to the growth in national economy and perhaps it outdistance the general econo One broad study, prepared by Tr portation Facts, Inc., a research ganization, for the Railway Prog Institute, the railroad suppliers' ganization (both are headquarte

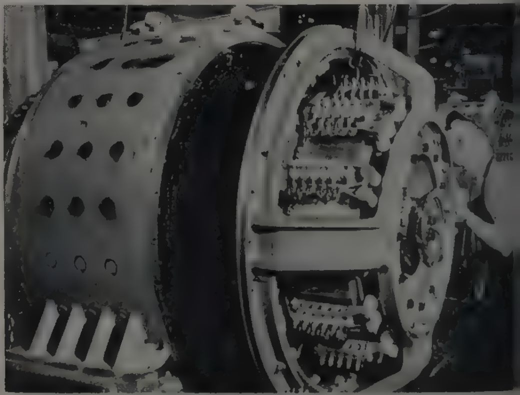
(Continued on page 194)



Pouring steel into molds in East Chicago, Indiana, foundry plant of American Steel Foundries, a major producer of railroad equipment

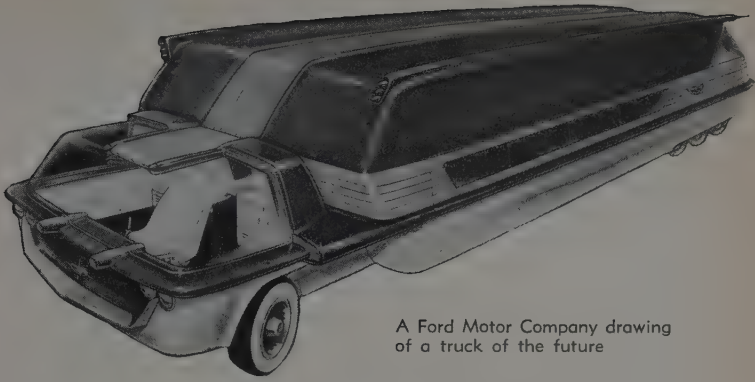
Assembling a shell for a lightweight, all-aluminum passen car for Train X at Pullman car works in Chicago

Handling a heavy freight shipment on the Illinois Central



Assembling a generator for diesel locomotive at Electro-Mc plant in La Grange

By Ray Vicker



A Ford Motor Company drawing of a truck of the future

Trucking Industry Expects 50 Per Cent Boost in Business During Next Decade

N the gray dawn light a rubber- belted conveyor automatically moves freight into a plastic trail- parked at a terminal dock. Me- anical fingers at the end of the nveyor neatly stack the assortment boxes and crates. Electronic scales der the wheels automatically keep ck of the trailer's weight balance.

On the dock a man sits by an elec- nic control board. Already the ight bill numbers have been nched on keys of an electronic nputer, storing information into memory drum." A teletype at the ad of the dock clicks steadily as it ays that information simultane- sly to a downtown office, a New rk terminal, the shipper, and to a ooklyn consignee.

As the rear doors of the trailer are ked, a driver finishes a cigaret, en climbs into the cab. The gas rbine engine coughs before set- ng into a thin whine. Automati- ly the tachometer, the speed re- der, the cab's air conditioning tem, a rear view television set, og radar and a two-way radio sys- n go on.

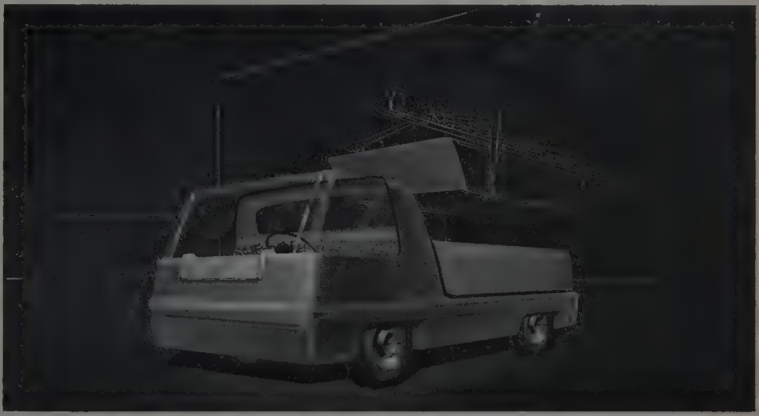
The dispatcher's voice drones over radio: "Indiana Highway Radio reports fog near South Bend, otherwise road conditions are good. Okay, take her out, Bill."

The truck eases slowly from the crowded terminal yard, reaches the nearby Calumet Expressway in a few minutes. Five minutes after leaving the dock the truck is wheeling east at a steady 60 mile an hour clip with nary a traffic light between it and New York.

Twenty hours later, after two driver changes, the truck pulls into the New York terminal. Its freight is delivered to the consignee within 24 hours after leaving Chicago.

Futuristic? Yes, but far from fantastic, say trucking authorities in Chicago — world's greatest trucking center. Service such as this may be expected by shippers within a decade.

Joint air-truck service will be permitting same day delivery from Chicagoland to New York, Los Angeles, Portland and elsewhere whenever time is of utmost importance. Joint truck-marine service will be tunnel-



An International Harvester Company version of tomorrow's truck

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The author is Industrial Editor, "Wall eet Journal."

ing freight from Middle West factories, merchandising warehouses and packing centers to the far corners of the world via the St. Lawrence Seaway. Rail-truck piggy back service on passenger train schedules will meet the needs of other shippers.

"The motor carrier industry will be a great, progressive part of the atom age," says W. Stanhaus, president, Spector Freight System, Inc., largest motor common carrier based in Chicago. He adds: "New highways, faster, more economical freight handling through push-button terminals, and new equipment geared to meet the challenge of industrial expansion will keep us in the first ranks of the transportation industry."

Expansion In Volume

With this stepping-up of service will come a tremendous expansion in volume. "Within the next decade the trucking industry should expand 50 per cent in terms of mileage and tonnage," predicts Walter F. Mullady, one of the trucking industry's most dynamic leaders and head of a half dozen trucking lines across the country. Two of the lines, Decatur Cartage Co. and Rogers Cartage Co., are headquartered in Chicago.

Chicago's trucking industry already is big by any standards. Today over 400 highway freight companies provide Chicago with direct or inter-line service to just about any point in the United States. Every day 12,000-odd trucks of these companies roll in or out of the city, lugging an average of over 20 tons of freight per trailer.

Lines include long established firms such as Webber Cartage Line and Cushman Motor Delivery. In addition there are the major outfits such as Consolidated Freightways, Transamerican Freight Lines, Pacific Intermountain Express and others which are headquartered elsewhere but regard Chicago as a key point on their routes.

Added to this are about 2,000 local cartage firms in the metropolitan area. Broderick Teaming, George McNeil Teaming Co., Arthur Johnson Co., Pennoyer Merchants Transfer and Edward J. Meyers Co. are among the trucking names long familiar to Chicagoans.

Brink's, a company with nationwide operations, is in a class by itself in the expanding trucking field. It specializes in the movement of that popular commodity — money.

Willett Co. too is in a class by itself. It is one of the city's most diversified transportation companies what with its local cartage service, truck leasing, bus rental service and contract hauling.

Today, Chicago trucking companies are looking ahead, aware that industry growth shows no sign of faltering. They need only look back to obtain an idea of what to expect. In the last decade the volume of freight has tripled for carriers in Chicagoland. In Illinois, registrations of p
vately owned trucks jumped fro
302,618 in 1948 to an estimated 42
237 at the end of 1956. "Ten yea
from now there will be approxima
ly 600,000 trucks in Illinois, not i
cluding those owned by local, sta
and federal governments," predi
William Noorlag Jr., general ma
ager, Central Motor Freight Assoc
tion.

For-Hire Service

About 12 per cent of the privat
owned trucks in Illinois now are e
gaged in for-hire service. C.M.F.
estimates that this percentage m
rise to around 17 per cent in anoth
ten years. It is pointed out that
trucking expands, for-hire indus
leaders will be working overtime
add new and better services.

"Truck users will find it more e
nomical to use for-hire services th
to operate their own trucks," M
Noorlag says.

Truck lessors, such as How
Willett Jr., president of Willett C
take a different stand. They conte
that company operated fleets, sti
lated by truck leasing, will g
faster than for-hire service. "Dur
the past five years our truck leas
operation has shown close to a
per cent increase," Mr. Willett s
"We have accepted this as the nor
pattern of growth in our field.
are confident that this growth
continue for many years." Wil

(Continued on page 254)

A heavy duty Diamond T Motor Car Company truck taking a full load

Proposed addition to Chicago headquarters of the Federal Reserve Bank

Revolutionary Changes In Banking Procedures Coming

By

Daniel F. Nicholson

A CONSERVATIVE summary of the outlook for banking in Chicago during the next decade or ɔ would be "challenging and ex- ing." There are opportunities for t growth, for greatly increased vice, and for unprecedented prog- s in lightening the burden of bank per work. There are big problems be overcome, too, but it all adds to challenges and opportunities it should satisfy the most enter- sing of men.

Even bankers use the adjective volutionary" in describing the nges they foresee. An instance is coming use of the fabulous elec- nic data processing machines. For eral years, Chicago banks have en studying and planning for the of these machines to cope with enormous and constantly mount- volume of check handling and okkeeping. The major obstacles ve been overcome, and the time ordering the equipment is close hand.

"Retail" Banking

There has been a distinct trend vard "retail" banking. This term ised to describe banking that caters re and more to individuals — cifically, the individuals in the ddle income group. The trend is to grow into a great movement, students of the banking business. ooking a little farther ahead, ybe ten or fifteen years, some kers declare that branch banking l inevitably come to Chicago. This uld be a truly revolutionary nge despite the fact that branch banking is commonplace among many other major cities. The effects would be far-reaching.

An indication of what bankers themselves think of growth possibilities can be found in spectacular property acquisitions made in anticipation of future space needs. One bank now owns all of the land in a square block downtown except for a small parcel owned by a local governmental body and leased by the bank. The bank also owns most of the buildings in the block. Another bank, as a result of additional purchases made only last year, now owns almost an entire half block, and is preparing plans for new structures.

Plans of the Federal Reserve Bank

(Continued on page 182)

Central Proof Division of the Continental Illinois National Bank and Trust Company

Chicago Investment Bankers Anticipate Large Growth in Ten Years

Expect expanding companies and municipalities to look to Chicago bankers for financing help

By Daniel F. Nicholson

CHICAGO "can't miss" a large growth in investment banking during the next decade or two, declares a partner in one of the city's largest firms in that vital industry. His reasoning goes like this:

If industry is to spend hundreds of billions of dollars for new plants, machinery and equipment, and if states and municipalities are to spend other billions to meet the growing population's need for schools, water, sewers, expressways, and the like, they will have to enlist the aid of investment bankers in raising a major share of the required capital.

Chicago investment bankers have the facilities, the capital and the know-how to handle this financing. And because the city is the center of an area with the most impressive industrial growth potential, it is believed inevitable that the area's expanding companies will look to Chicago when they need financing.

Outlook Favorable

A commercial bank officer who keeps close contact with investment banking agrees that the outlook for the latter is most favorable, and as confirmation he points to the establishment of Chicago offices in recent months by firms headquartered in other cities. Other houses would like to have their own offices in Chicago, especially if they could acquire a going business staffed with qualified personnel, he states. Nearly every major investment banking firm in the United States already has an office in Chicago, and those few that don't are well represented through correspondent relationships with Chicago-based houses.

Ownership Spread

Aside from the prospect for doing a large volume of business in the next ten to twenty years, investment bankers see an opportunity to strengthen the free enterprise system by spreading the base of ownership in corporations. What has already been accomplished in this respect is called a new phenomenon by one banker. Ownership of corporate stocks has now spread to every corner of the nation and among people in all walks of life. This is the result, to a large extent, of such efforts as the "Invest in America" program of education sponsored by the Investment Bankers Association of America, the monthly stock purchase program inaugurated by the New York Stock Exchange through member firms, and the educational programs of other stock exchanges.

Individual investment banking firms have had remarkable success in attracting new customers through advertisements in newspapers and magazines, radio and television programs, the distribution of educational literature, and instruction classes for neophyte investors eager for knowledge. Yet the surface is only scratched, says an officer of a firm with one of the best records in acquiring new customers by means advertising and education.

Investment banking will scratching well below the surface the years ahead to obtain the en mous amounts of investment capi that will be needed by corporate a governmental borrowers. This w not involve a difficult innovati for most firms, for they already ha adjusted to the great changes th have taken place in their business the last quarter century. Investme banking is "unbending," says one the fraternity in describing the pr ent day attitude.

Just how different investme banking is today from what it w in the late 1920's is illustrated str ingly by the experience of one C cago firm. Back in those years t company had more than 500 sal men operating from 27 branch Today the firm has between 45 a 50 salesmen. This is not a sad st of decline, however, for this sa house is doing much more busin than it did a quarter century ago

The explanation is that the fi has never deviated from the ult conservative practice of underw ing and selling only bonds — cor rate and municipal. And bonds m be sold in a different way than the 'twenties.

Corporate Bonds

Twenty-five or thirty years a bonds yielding six and seven cent were common. Income tax ra were very low by present standa and the investor realized a net yi after taxes, not much less than coupon rate. Under conditions low interest rates and income rates that rose rapidly to more th 90 per cent, individuals could longer afford to buy corporate bo Persons in the high tax brack turned to tax exempt municipal curities. Inflation caused many invest in common stocks to offset dwindling purchasing power of dollar.

Even if the individual inve were willing to buy corporate bo the investment banker could longer afford to sell to him exc

(Continued on page 245)

west port of call: Chicago, Illinois, on the eighth a, the St. Lawrence Seaway. And who could be more thrilled . . . n the one store that is best-known in the crannies of the other seven s. Imports, searched out by our globe-spanning buyers, will arrive with y speed on the St. Lawrence Seaway. Exports, Chicago's beef and the dwest's agricultural and industrial bounty, will be delivered with new ed on the St. Lawrence Seaway.

Marshall Field & Company

Chicago Board of Trade Extends World Leadership

Port Destines City To Become Top Grain Exporter

World's dominant grain futures market, Chicago Board of Trade

By

William Ferris

TWO new grain elevators rose from the flat land along Lake Calumet this past winter. A third was put into operation last year. These three structures comprise the first grain elevators built in Chicago in a quarter century.

This excited activity in a business area long somnolent portends a new era: Chicago as a world seaport. It is confidently expected by Chicago grainmen that within the next decade Chicago will become the leading seaport in America for the export of grain.

The heart of the grain trade is the Chicago Board of Trade. Founded in a room over a flour store on So. Water St. 109 years ago, the Board became the nation's leading grain market in the bustling Chicago of the 1850s and 1860s. Throughout this century it has maintained its position as the dominant grain futures market of the world.

The Board has developed a capacity to shift with agriculture's changing times. An example is provided by soybeans. Soybeans were once considered a "curious oriental plant." As they started to gain some popularity, the Board inaugurated trading in soybean futures in 1936. It was a very small trade. But in recent years soybeans have vied with wheat for the position of top trading vehicle among the Board's commodities.

Equally spectacular, and more recent, has been the success with two end products of the soybean — bean oil and soybean meal. Board started trading in soybea in 1950, at which time the New Produce Exchange was the lea market. Today Chicago handle per cent of the nation's futures ing in soybean oil. In 1951 the B inaugurated soybean meal trac when Memphis was the leading ket. Chicago now has gone ahea Memphis in yearly volume.

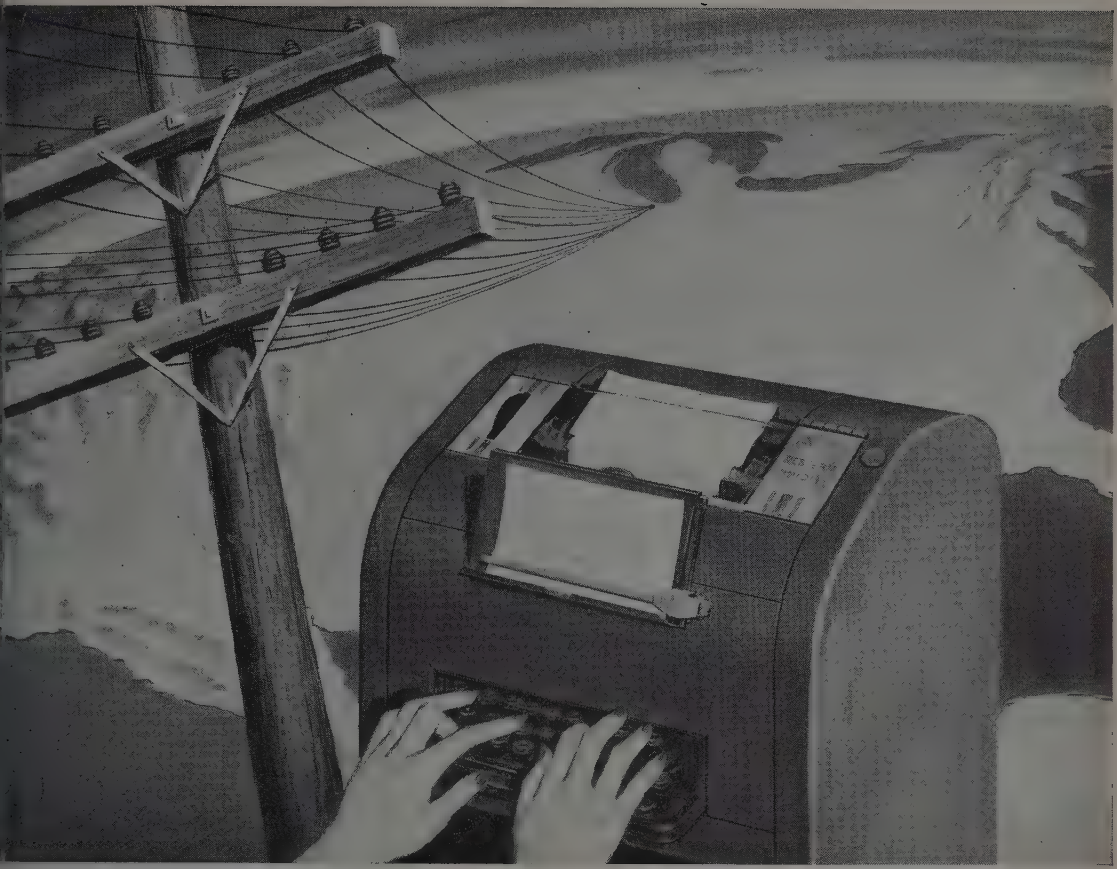
Two basic markets exist on floor of the Board of Trade. O the futures market, where grai bought and sold for delivery at future date. The other is the market, where the grain arrivin Chicago by barge, rail and t each day is bought and sold. types of traders use the futures ket: speculators and hedgers. S lators buy or sell in hopes of ma a profit on price changes. He buy or sell to offset their positi cash grain, hoping to protect t selves from price changes. I may change because of such v and unrelated items as war in chinch bugs in Kansas, rain in as, and dozens of other reasons

Great Food Producers

The hedgers are the nation's food producers, the feed man turers, the warehousemen, the millers, the export houses. Alth they use the futures market, an happy to transfer the risks of business to speculators, these mercial concerns seldom tak make delivery of cash commo when the futures fall due. B then, they've canceled out thei sitions in futures. So have speculators. Thus the amou grain actually delivered on fu is very small in proportion t total trading volume. Yet the B futures market is the key to movement of grains off farm into the hands of consumers.

All those connected with ag ture, including the Board, can toward the horizon and see an mously expanding market fo products of the farm. The including the United States, is

(Continued on page 232)



e're just seconds away...by Bank Wire!

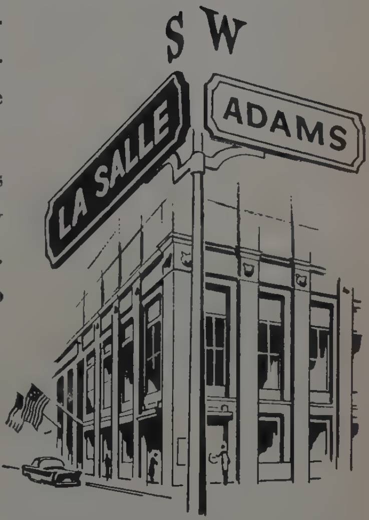
In almost any business there comes a time when a reliable Chicago banking connection is needed in a hurry. Credit information, loans, fund transfers, collections—or specialized business information—all can be at your command in *seconds* via the Bank Wire Service.

At the Chicago end of the wire, City National's full facilities await your summons. One of Chicago's strongest banks, City National has the facilities to serve your every business need. Wherever you are—whatever your business—we'd like to do business with you.

ITY NATIONAL BANK

AND TRUST COMPANY OF CHICAGO

208 South La Salle Street • FRanklin 2-7400



(Member Federal Deposit Insurance Corporation)

Savings and Loan Associations To Kee Lead In Home Financing Field

Predict Assets Will Quadruple In Next Twenty Years

A MAN with a pocketful of savings bent on finding a savings and loan association in the Chicago area after 1975 will find in all probability that their growth in the next 20 years will have been in the same giant strides as those of the last half century.

It is expected, if a robust economy prevails, that the assets of insured savings and loan associations in Cook county will reach 9 to 12 billion dollars in the next two decades. With such a total possible, it is difficult to realize that the early associations around the turn of the century were voluntary clubs, without offices or paid officials, which were organized for self help in home buying by European immigrants.

Anticipated Growth

Among the main factors in the anticipated growth are a predicted increase in population and growth of Chicago as a thriving industrial, financial, and port city. It should be pointed out, however, that the expected growth is based on the premise that inflation will not destroy the incentive for savings during the period.

The backbone of the savings and loan business in the future will continue to be the provision of financing for the construction of houses, but experts in the field believe a tendency to liberalize investment powers of savings and loan associations can be expected.

Areas in which such growth can be looked for are municipal and state bonds and to a lesser extent corporate securities in addition to the present investments in home mortgages, home improvement loans, and government bonds.

A trend also is expected toward package mortgages, although in this connection there are interesting legal questions involving varying views as to what constitutes real or personal property. For example, are home freezers, disposals, and automatic washers, part of the home or are they the personal property of the owner?

With or without the "extras," savings and loan associations will be major factors in home financing. For the short range view, about two-thirds of the homes built in the Chicago area in the next six years are expected to be financed by savings and loan associations.

Myron H. Fox, president of the Cook County Council of Insured Savings associations and also president of Bell Savings and Loan association, predicts that some 267,000 new homes and 33,000 apartment units will be constructed in the next half dozen years. In addition, another 304,000 existing houses will be sold.

In all, some 800,000 persons will be involved. The insured savings and loan associations in Cook county are expected to provide about three-fourths of a billion dollars annually in the next three years for home financing. Thereafter, more than a billion dollars will be supplied each year for home financing by those organizations.

In general, mortgages are expected to be of the long term, 20 to 25 year type. John E. Stipp, president of the Federal Home Loan Bank of Chicago, the reserve credit institution for savings associations, said that in the next few years the loan bank probably will provide long term credit to its member associations to keep in step with the longer mortgages granted by them. Furthermore, the
bank probably will provide mort
warehousing for conventional
government insured mortgages.

In 25 years, Stipp foresees a m
role played by the association
area reconstruction or the finan
of rehabilitation housing in blig
areas and the prevention of det
ration of older areas by moder
tion financing.

The leading change in saving
loan associations, however, wi
the growth in assets of the exi
associations. Leaders in the fiel
not anticipate a large increase i
number of insured associations i
metropolitan area beyond the
ent 195. There is a possibility,
ever, that some Chicago associa
will move to the suburbs to fo
population shifts or to allevia
concentration of associations in
same areas.

Insured Associations

The 195 insured savings and
associations presently include
those chartered by federal and
governments which are insure
the Federal Savings and Loan I
ance association, a federal go
ment corporation. Of the 195, 5
federal chartered and 138 are
chartered. In addition, there
number of uninsured smaller
tutions.

Total assets of the insured as
tions now amount to approxim
two billion 800 million dollars
times as large as 10 years ago.
leaders in the field believe it wi
difficult for assets of Cook co
associations to again grow five
in the next decade, but a qu
pling of the present growth in
next 20 years seems possible.

"It is difficult to forecast gro

(Continued on page 234)

Only Steel can do so many jobs so well...

in Chicago!

Beautiful Garage? That's right. Some de-
gners think that this Chicago parking garage is
bout as good-looking as you can get. The secret:
alls are made from USS Stainless Steel Strand,
l miles of it. The strand is held under 1,000 pounds
nsion with tough American Quality Springs, made
y American Steel & Wire Division of U. S. Steel.

Tallest Building In Chicago. Naturally, it's the handsome Prudential Building, one of the outstanding buildings in the United States. The American Bridge Division of U. S. Steel fabricated the immense steel skeleton for this building. It required 31,000 tons of structural steel.

Your Famous Bridges are known throughout the world, and every one of them depends on steel. The Congress and Van Buren Street bridges shown here are made with U. S. Steel's I-Beam-Lok open bridge flooring. Compared with ordinary concrete flooring, this construction saved 896 *tons* of steel. Taxpayers saved the difference.

UNITED STATES STEEL

USS

AMERICAN BRIDGE . . AMERICAN STEEL & WIRE *and* CYCLONE FENCE . . COLUMBIA-GENEVA STEEL
CONSOLIDATED WESTERN STEEL . . GERRARD STEEL STRAPPING . . NATIONAL TUBE . . OIL WELL SUPPLY
TENNESSEE COAL & IRON . . UNITED STATES STEEL HOMES . . UNITED STATES STEEL PRODUCTS
UNITED STATES STEEL SUPPLY . . *Divisions of* **UNITED STATES STEEL CORPORATION, PITTSBURGH**
UNION SUPPLY COMPANY · UNITED STATES STEEL EXPORT COMPANY · UNIVERSAL ATLAS CEMENT COMPANY

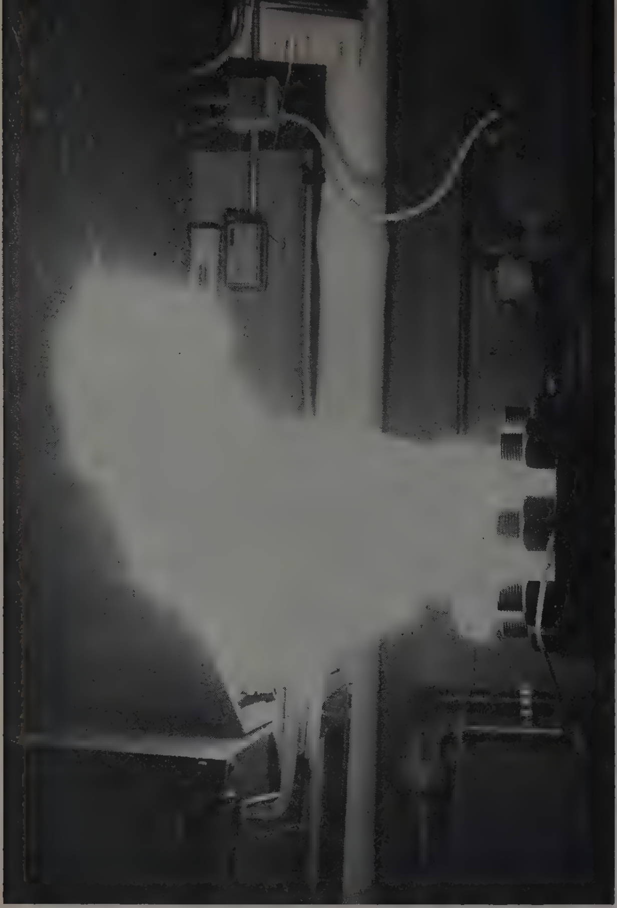
SEE THE UNITED STATES STEEL HOUR. It's a full-hour TV program presented every other Wednesday evening by United States Steel. Consult your newspaper for time and station.

7-421

From Atoms T

By
June Blythe

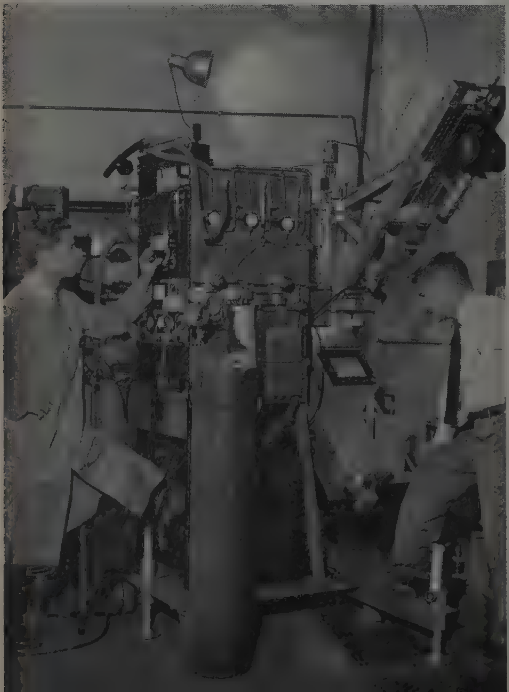
WHATEVER your questions about tomorro
from how man will breathe in the upper
mosphere miles above the earth, to how to
vive "dead" oil wells miles below its surface –
can find the answers in Chicago-area laborato
Tomorrow's history is being charted here today
the largest concentration of varied basic and app
research facilities in the world.



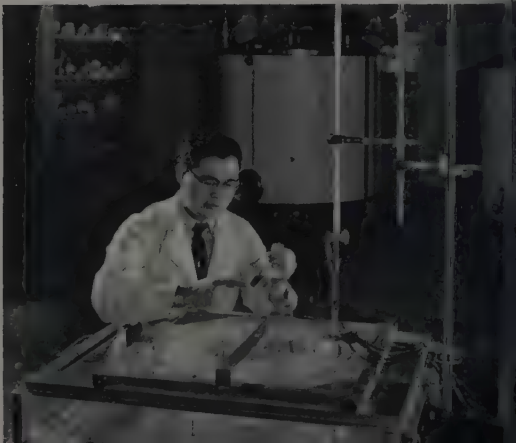
Armour Research Foundation shoots dust from shock tube to test metals against outer-space conditions

New American Can Co. Research Center, world's la
food and container laboratories

University of Chicago's "bubble chamber" for photographing action of nuclear particles

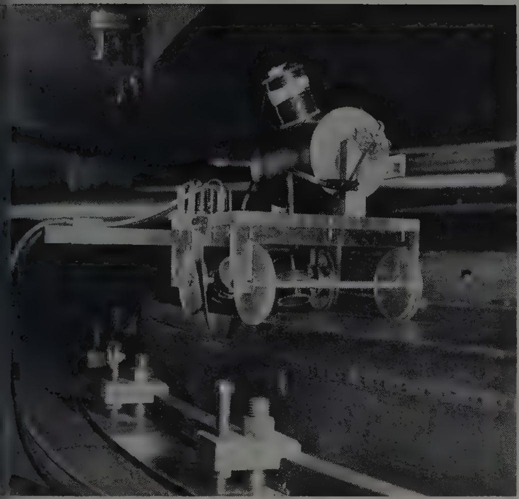


Automation in research—Armour and Co.'s fraction coll
for isolating chemicals



ootomy Being Researched In Chicago

ommunity's Unmatched Resources in Scientists and Facilities Are Shaping Tomorrow



co Fermi's plastic "trolley car" positions target along rim niversity of Chicago's synchrocyclotron

Cradle of the nuclear age—the research reactor building at Argonne National Laboratories

he Chicago area enjoys unusual riches in research ough a fortunate combination of industrial and cational resources. Though no hard and fast lines drawn, a kind of partnership has developed where- much of the research in the area's educational itutions follows basic, or fundamental directions, the preponderance of industrial or trade associa- research pursues product and process applications. hese two approaches to scientific inquiry are, of rse, often wedded, and most frequently at one of the nation's largest independent research organizations, Armour Research Foundation at Illinois Institute of Technology. Illustrative are the projects selected as the initial three-year program for the world's first nuclear reactor devoted exclusively to industrial research.

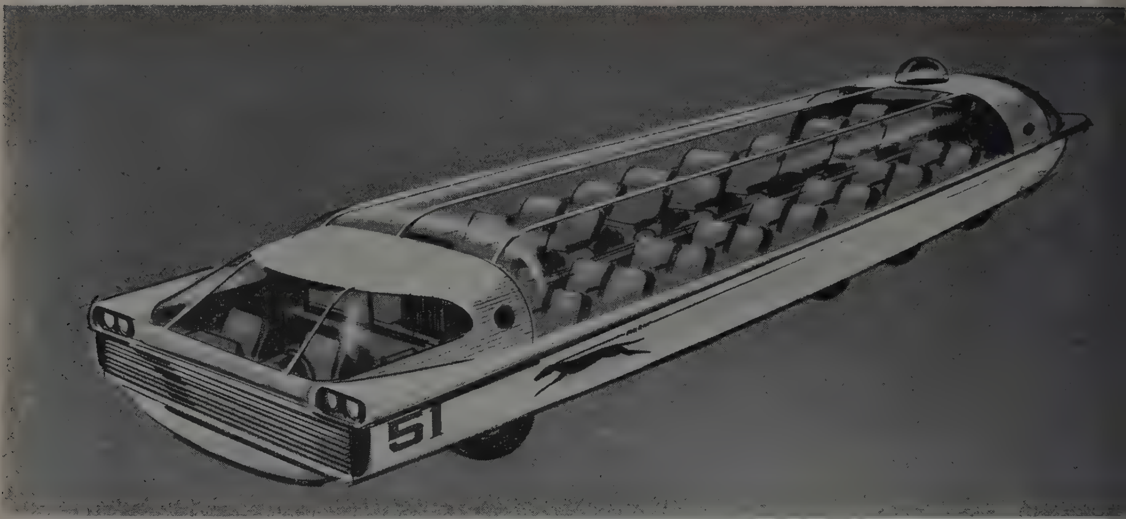
Owned jointly by Armour and 24 sponsoring companies, the $700,000 reactor will be used to investigate such areas as:

New ways to produce radiation, possibly entailing

(Continued on page 174)

Chicago research and development building, metals divi- , Continental Can Co.

John Stuart Research Laboratories, recently opened by Quaker Oats Co., at Barrington



Within a decade, American bus passengers may travel in gas turbine streamliners

Intercity Bus Business Will Double In Next Decade

By Ray Vicker

A SMILING, young hostess in a jaunty uniform extends a tray of sandwiches to a passenger by a window seat, then helps a mother escort a child to a rest room at the head of the aisle. Taped background music dulls the steady engine hum as miles roll by. The aroma of fresh coffee hangs in the air.

No airliner this, but a modern, luxury bus! Already a few of these units provide a taste of what the
traveler of the future may expect
intercity routes in the way of co
fort. Already a 20-hour express
schedule over superhighways
tween New York and Chicago ch
lenges the 16-hour schedules of t
crack trains, and shows what the
ture bus traveler in all parts of t
country may expect in the way
speed.

New equipment and new hig
ways! These promise a tremendo
boost to the intercity bus industry

"The bus industry will be a billi
dollar business — more than twice
present total — within ten year
predicts Arthur S. Genet, preside
Greyhound Corp., Chicago. "B
routes will grow to an amazing to
with our use of the new and i
proved highways which will allow
to provide an even more comforta
ride and better time schedules
tween all cities."

New joint air and bus shipping service launched by Greyhound Corp. serves 6,000 communities

Federal Highway Program

The new $51 billion federal hig
way program ultimately will res
in the creation of a network
41,000 miles of superhighw
stretching from the Atlantic to t
Pacific and from the Canadian b
der to Mexico.

"The elimination of congest
highway conditions will make p
sible much faster schedule servi
under much better travel con
tions," says M. E. Moore, preside

(Continued on page 234)

new horizons

mean new

opportunities...

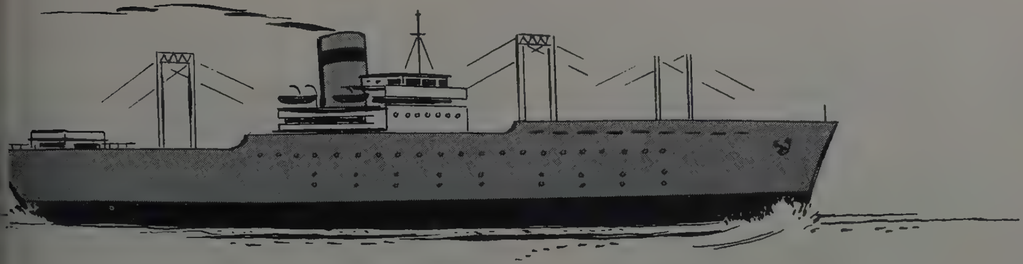
and new

services . . .

Kemper Insurance joins the Chicago area and the Midwest in hailing the vision and enterprise which made possible the St. Lawrence Seaway and the Calumet harbor project.

Chicago will soon be a world port . . . opening vast areas of new opportunity. Concurrently, new services will be needed. Recognizing this, Kemper Insurance has entered the field of ocean marine insurance.

As in other insurance lines since founding of the organization in 1911, Kemper Insurance will provide the best in insurance protection and service at lowest possible cost.



Lumbermens MUTUAL CASUALTY COMPANY

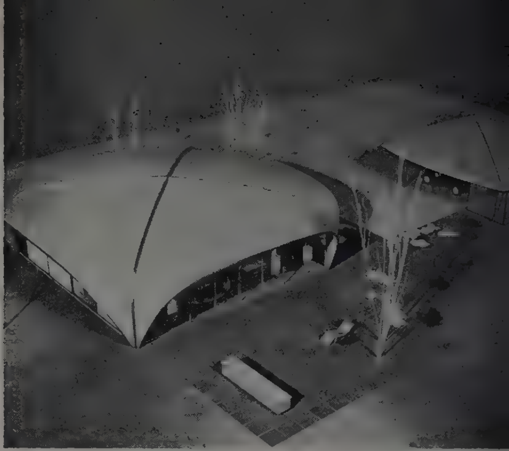
American MOTORISTS INSURANCE COMPANY

AMERICAN MANUFACTURERS MUTUAL INSURANCE COMPANY

Federal Mutual INSURANCE COMPANY

Divisions of **KEMPER INSURANCE** Chicago 40

Moveable partitions in flexible interior, Research Village, U. S. Gypsum Co.



General Electric's "1964 American Home" with stressed-plastic roof, rotating living circle

Key to Homes of th

Chicago Residential Builders Pred

By Mary B. Stephenson

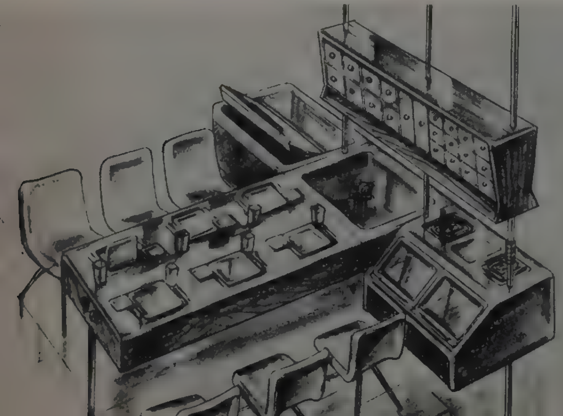
HOW different will the new Chicago home ten or fifteen years in the future be from today's ranch and split level dwellings? By 1970 can Chicagoans expect to be living in dream structures of glass, steel, or plastic, complete with push-button marvels to perform every household task?

Chicago architects and builders predict the home of tomorrow will be as much better than today's as the 1957 house surpasses one built in the nineteen-thirties. New materials, new construction methods and techniques, will give the average man a better house than ever before. But radical changes in basic design and appearance are considered unlikely.

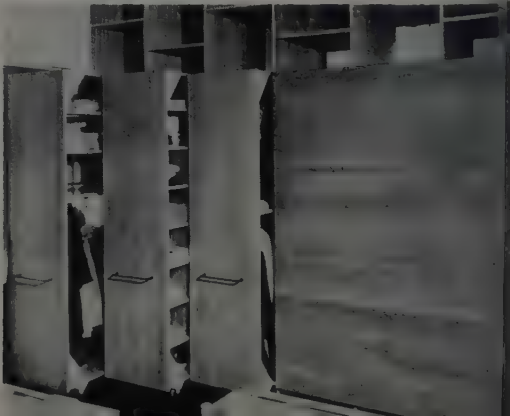
Tomorrow's home will still have four walls and a roof, and probably won't use any more glass than today's house. It's likely to be more straightforward in structural contemporary design with less clinging to traditional models, and better adapted to tomorrow's casual leisure living. New materials, and old materials used in new ways, will be widely employed. But the biggest changes
be found inside the house, in it
terior plan, its mechanical eq
ment, and its furnishings.

To provide more space for to
row's family living, inside plans
be more flexible and open, Chi
architect Edward Dart pred
Houses may be built with few
arate rooms. Instead of fixed p
tions, storage cabinets that ac
walls but can be put up and ta
down, or movable partitions,
be widely used. With such flex
interiors, houses could be expan
as the family grows, or contra

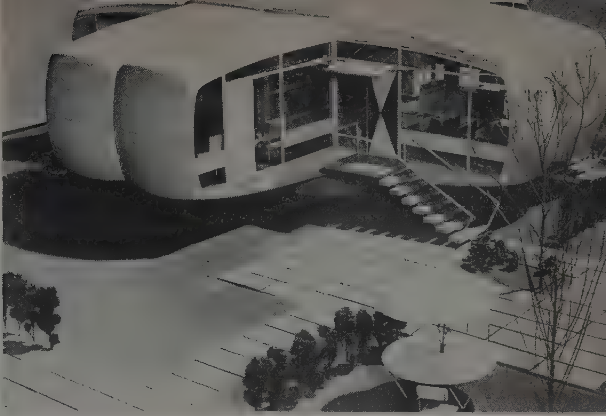
Streamlined food center of the future could combine preparation, dining and clean-up equipment



Filing-cabinet efficiency for family wardrobes, designe
Chicagoan Henry P. Glass



or-outdoor pavilion employs glass, steel and ceramic tile
asy maintenance, leisurely living



"House of Tomorrow" by Monsanto Chemical Co., of U-shaped plastic units cantilevered from center

uture Is Flexibility

en Interiors and Electronic Housekeeping

n the children leave home. The
l of larger houses and the in-
sing scarcity of land may bring
end back to the two-story house,
end foreshadowed in the rising
ılarity of the split level house.

Tomorrow's house will be better
nized to take care of our greatly
eased leisure time," George Fred
, designer of many contempo-
Chicago homes, forecasts. "It
include space for the arts in the
e. Room for music, painting,
r leisure time avocations will be
ned for. It's even possible to in-
e a small greenhouse."

Builders of large multi-unit home developments will follow the lead of the custom builders and architects in their use of new materials and new architectural forms in the coming decade. In the middle and lower price range homes, some experts believe, prefabrication will take giant strides. By 1970, the home building industry may, like the auto industry, consist of a small number of large prefabricators, and fewer small builders..

Revolutionary changes in home heating and air conditioning are in

(Continued on page 112)

Hotpoint's supersonic clean-up center, with twin dishwashers

en without walls groups all appliances at center of living
Built by General Electric Co.

All-in-one gas cooking center features automatic burners and oven, oversized motor rotisserie

One of the newest things in office lighting is this huge ceiling-siz
"floating" fixture, developed by Curtis Lighting, Inc., Chicago

Tomorrow's Office Features Automated Equipment

"COMPUTERS are saving American industry millions of dollars a year. But we've hardly begun to use all the capabilities of electronic data processing equipment. Production scheduling, market analysis, planning of future purchases — these are just a few of the jobs now being done manually which could be done far quicker, and more efficiently, by a computer."

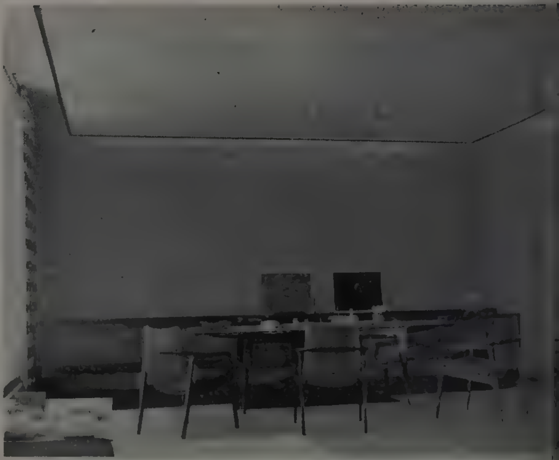
The author of this statement, a Chicago management consultant, emphasizes that his remarks apply as much to small and medium sized companies as to large ones. "The equipment now on the market," he adds, "is quite capable of taking over these additional jobs."

Systems engineers, meanwhile, are developing new equipment. Their efforts are aimed at cutting the time required to process data before it goes into the computer and after it comes out. Also they're trying to reduce the cost, size, and downtime of data-processing machinery. The result of their work, still several years away from completion, will be "integrated data processing" — a system permitting the typical company to write an order, say, or an employe's hours, just once and have machines prepare the copies and variations of the original document automatically, all at fantastically high speed.

Automated Office

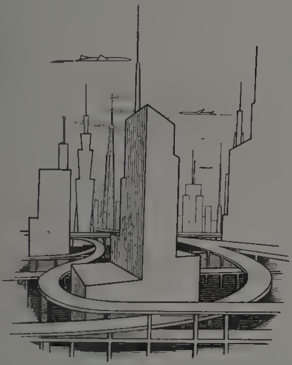
Chicago doesn't manufacture computers but it is playing an important role in the evolution of tomorrow's automated office. Armour Research Foundation, on the city's near south side, has a large staff of researchers developing better data processing equipment and new applications. Chicago is also the home of several

(Continued on page 228)



Executive office in the new Cory Corporation executive office bu

When will Chicago be...
"The World's Greatest City"?



"Chicago, 25 years after completion of the St. Lawrence Seaway, should be the world's greatest city." The man who recently made this spectacular prediction is Mr. Thomas H. Coulter, chief executive officer of the Chicago Association of Commerce and Industry.

While a man in Mr. Coulter's position might be expected to have an abundant supply of optimism, it's hard to argue with his facts:

CHICAGO

... has added 5,000 new manufacturing plants since 1939 (it is estimated that 513,000 additional workers will be needed by 1960)

... handles 45,000 railroad freight cars daily—more than are handled by any other railroad center

... on completion of the St. Lawrence Seaway will be available to 90% of the world's shipping

... is the only city on the Great Lakes with a connecting link between ocean-borne traffic and the Mississippi Waterway

... is already the world's leading air transportation center

... has truck facilities that handle about 40% of all truck freight in the U.S.

What's happening here in the *new Chicago* affects every business and every businessman in the nation. These are facts for America to grow on, and for you to profit by.

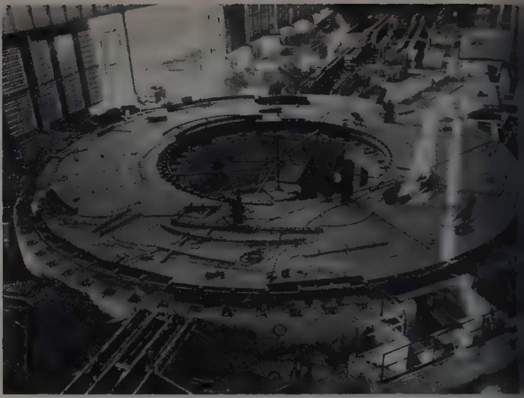
In its 124 years, Chicago has grown faster than any other city in the world. For 75 of these years the Harris Organization has been in the thick of Chicago's progress, helping its industry and its citizens prosper and plan for opportunities ahead.

Our
75th
Anniversary
Year

HARRIS *Trust*
and Savings BANK

Organized as N. W. Harris & Co., 1882 • Incorporated 1907
115 W. MONROE STREET CHICAGO 90
Member Federal Reserve System . . . Member Federal Deposit Insurance Corporation

New furnace roof design at Inland Steel Co.'s Number 2 Open Hearth Shop



World's largest rotary hearth furnace at Youngstown Sheet and Tube Co.

Booming Steel Industry To Grow More

World's Biggest Producing Area Is Still Adding Capacity

By Keith Bennett

WHITE hot rivers of steel from Chicago steel furnaces are swelling to a flood, pouring Chicago-made steel into every corner of the nation. A rising tide of steel products, ranging from girders to road graders and ashtrays to aircraft engines, roll from Chicago by day and by night; by truck and by freight-car, by barge and by plane.

The biggest industrial-growth city in the U. S. is also the city that produces more tons of steel each succeeding year than any other in the world. Vice President Hjalmar Johnson of Inland Steel said, "I am one of the optimists who thinks that the rate of growth will continue and I believe that by 1967 we will be able to produce 33 million tons (each year) of ingots in this area." Mr. Johnson was referring to a group of local mills which can now produce 24 million tons annually.

The entire Chicago steelmaking district can already produce half as much steel as was poured in the Soviet Union in 1956. It can produce one-third the total output of the Communist bloc of nations.

Since 1948, this steelmaking colossus has been growing at a million-ton-a-year rate. U. S. Steel Corporation's two major plants here have gone from 10.2 million tons yearly capacity to 12.6 million tons. Inland Steel has grown from an annual capacity of 3.4 million tons in 1948 to 5.5 million tons this year, a 60 per cent gain. Youngstown Sheet & Tube was rated at 1.4 million tons in 1948 and now tips the scales at 3.1 million tons, an increase of more than 100 per cent. Youngstown's plant here has become that company's largest. Republic Steel's South Chicago Works this year became its third largest.

Higher Capacities

Demand from Chicago based industries is pushing steelmakers to even higher capacities. There is already more than 3 million tons of new capacity on the drawing boards. U. S. Steel board chairman Roger Blough has announced expansion programs at Gary Works calling for an additional 700,000 tons of new capacity, and South Works is scheduled for a capacity increase of 500,000 tons. Inland is expected to increase output by one-half in the next ten years and is only partially through a $260 million expansion program.

Steelmakers, through their American Iron and Steel Institute, mark up the map into steelmaking districts for purposes of industry statistics. These add more mills to the Chicago district than those located within Chica metropolitan limits. On the basi these figures, Chicago will rise 38-40 million tons by 1967 fron present rating of 29.3 tons, roug a 33 per cent advance.

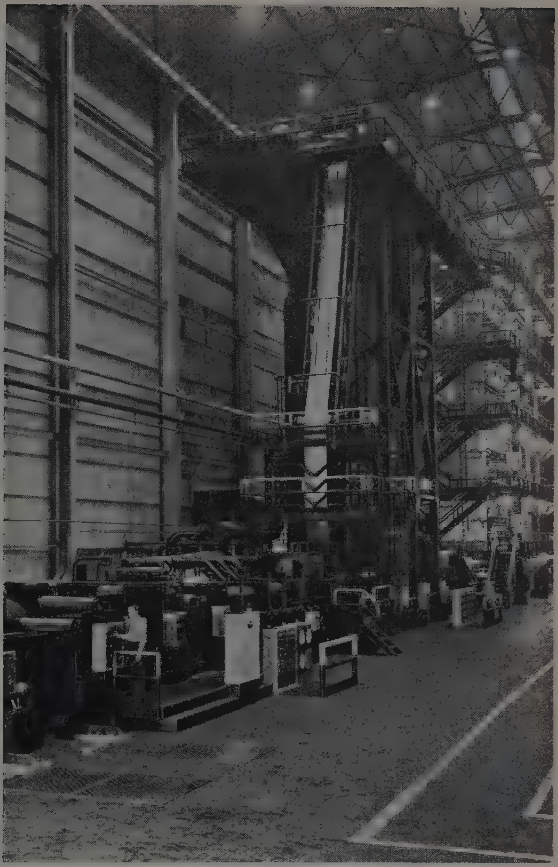
Why do producers find Chic such a good place to build new st making capacity? For one thing, C cago district mills operate on average 2-3 per cent nearer their to capacity than do steel mills nati ally. A producer of bar steel ca lates it could sell the entire out (about 300,000 tons per year) in t local counties. A major integra steel plant here sells 50 per cent its output within 50 miles of plant.

Steel companies with headquar in other cities, as a result, are c centrating some of their largest pla in the Chicago area; realizing tha Chicago based steel mill can be compete in an area that consu 40 per cent of the nation's steel o put. Since Chicago produces o about 22 per cent of the annual tional steel output, there is ple of business left for mills less conv iently located. By the same tok Chicago mills have a long expans road ahead.

About 20 per cent of the natio finished steel is distributed by steel warehouse industry. Again, C cago is the leader. Major warehous firms — Joseph T. Ryerson & S

The author is Chicago regional editor, Iron Age Magazine.

harging electric furnace at Republic Steel Corp., capacity is being increased by 372,000 tons



Steel strip climbs five stories in new continuous annealing line at U. S. Steel Corp., Gary

. Steel Supply; A. M. Castle;
ral Steel & Wire—are headquar-
l here. No other metropolitan
has a concentration of steel
houses of similar size and vari-
More than 200 warehouses are
ed in the Chicago area, includ-
those which handle secondary
s, reinforcing bar, and tubular
s.

Increased Markets

1956, these retailers of steel
lled 3 million tons of finished
in Chicago, most of it in small
rs not exceeding 1,000 lbs. As-
ng that warehouses continue to
ase their markets for small
ages of steel at the rate they've
ved since the close of World
II, Chicago warehouses will
et 5 million tons of steel as early
65.

ilding new steelmaking capacity
costly business. New capacity is
ng in at costs of $350 per ton or even as much as $400 per ton. If Chicago continued its 1 million ton per year growth on a new equipment basis, the charge would exceed $350 million annually. Expanding capacity without incurring that kind of expense has been a major steel headache, but one for which the industry is developing its own aspirin tablet. Inland Steel has reported increases of 10 per cent in tonnage of steel that can be poured without changing the structure of an open hearth furnace. Oxygen is blasted through the furnace burners and bubbled through the molten steel in the furnace. On a 300-ton-per-heat open hearth furnace such as the three the company is now readying, this would amount to 90 tons of additional output per furnace per day.

The same Chicago firm reported that additions of steam, oxygen, and blended coke in a blast furnace can increase pig iron output per furnace by 10 per cent or more. U. S. Steel, using its all-basic-brick open hearth furnace has proved it can produce more steel, use less fuel, and that the furnace will last longer before repairs become necessary. Republic is increasing steel output in its electric furnaces with new scrap charging techniques.

Hot Metal Plant

Acme Steel, which has never produced hot metal in the Chicago area, will begin work on a hot metal plant this May. It is expected to produce 450,000 tons of ingot annually when completed in 1959. Neither blast furnaces nor conventional open hearth furnaces will be used. The iron will be smelted in a cupola furnace like those used in foundries. The iron will become steel in vessels into which oxygen is blown from overhead "lances."

Therefore, Chicago steel will drive to expand along three avenues in the decade ahead. (1) There will be addi-

(Continued on page 236)

Trading floor of Mercantile Exchange *Korth photo*

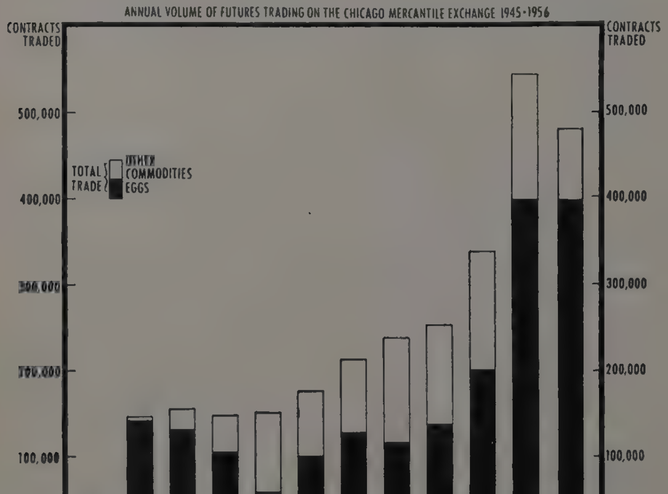
By

William Ferris

Mercantile Exchange Maintains Its Top Futures Trading Position

THE fastest growing commodity futures market in the world is the Chicago Mercantile Exchange. Already it is second only to the Chicago Board of Trade in the value and volume of commodities traded, and it has become the nation's leading market place for perishables with the dollar value of commodities traded in each of the last two years running between $2 and $2½ billion.

In the four years 1953 through 1956, trading on the Mercantile exchange was larger than in the fifteen years 1937-1952. This rate of growth
is remarkable in itself, but it is
the more notable in view of the
change's vulnerability to "soci
tic" moves on the part of the gov
ment. For example, trading in
ter futures, once a flourishing a
ity, has been knocked out by fed
price supports. In the last t
months of 1956, volume in egg
tures slackened significantly after
U. S. Department of Agricul
started buying cash eggs to prop
market.



New Opportunities

The explanation is that the
change, by experimentation, fo
new opportunities to perform
economic service. Trading in o
futures, a post World War II d
opment, is now an important a
ity. In two of the last five y
trading on onions exceeded th
storage eggs. In recent mont
futures contract for frozen eggs
inaugurated with excellent pros
of success. The exchange is con
plating the establishment of tra
in frozen shrimp, and the possi
ties that such trading will also fi
economic need are considered g

E. B. Harris, president of the
cantile exchange through its
fruitful years, views the futur
this marketplace as "highly pro

(Continued on page 235)

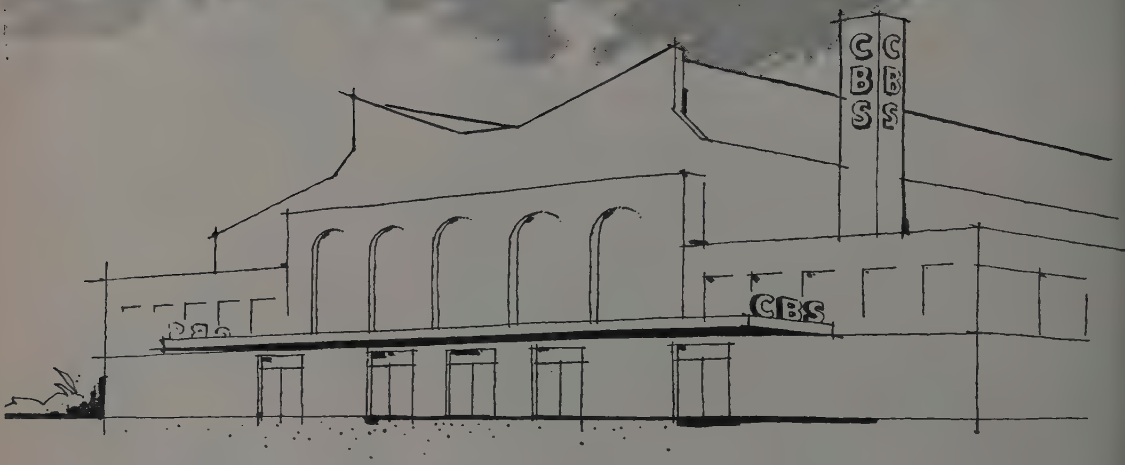
Vhat airline is giving all its planes radar "eyes"?

nited Air Lines

First U. S. airline to order radar for all its planes, United now has the world's largest radar fleet—and more coming. Radar lets your pilot "see" through cloudy skies 150 miles ahead, helps him pick the best and moothest course. You experience new comfort and even greater on-time ependability at any time of year when you fly United. For reservans, call or write United Air Lines or an Authorized Travel Agent.

UNITED AIR LINES ®

CBS Chicago

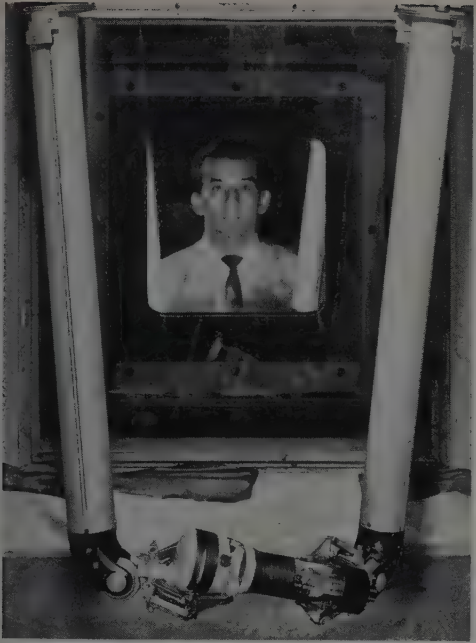


This new block-square facility incorporates, under one roof:

- ▶ One of the largest, most complete television stations in the nation.
- ▶ One of the best-equipped radio stations in the country.
- ▶ Both represent the finest of their kind to be found . . . anywhere.

Chicago's Showmanship Stations

ONTARIO TO ERIE AT McCLURG COURT



Operator outside of the "hot cell" room handles radioactive cathode ray tube by remote control at Admiral

Circuitry for car radios is printed on two sides of the chassis simultaneously at Motorola with this new printer

Greater Electronic Wonders Ahead

By Larry Wolters

ulating traffic at Zenith's main plant via closed circuit television

HE electronics industry was cradled in Chicago a half century ago after the invention of three-element vacuum tube by Lee DeForest here. Since World r II Chicago has led the nation electronics output, while the in- try has become the ninth largest in the nation. And metropolitan Chicago will continue to be the electronic capital of the nation and world in the decade ahead.

The electronic industry, which has been growing at a rate of a billion dollars or more a year, turned out 11.5 billion dollars worth of goods in 1956. Chicago's portion of this enormous production has now reached $1,650,000,000 annually.

Although executives of electronics concerns are reluctant to forecast the future except in general terms, they do say that Chicago will continue to blaze the trails in this field in which spectacular developments are expected. Even the more conservative prophets expect the nation to double its electronic production in the 1957-1966 decade, which would bring the annual production to $23 billion. And Chicago's share would rise proportionately.

Electronic production has included an endless variety of devices and components that go into radio, television, radar, long distance telephony, hearing aids, electronic computers, and myriad items and gear that go into defense material, some of it classified. But this is only the beginning. The future of electronics

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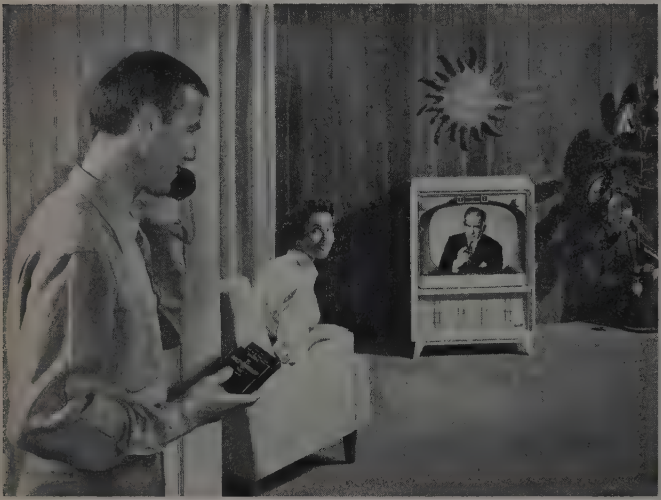
The author is radio and television editor, Chicago Tribune.

Electronics checks the speed of this Kansas City Athletics' pitcher's throw



Zenith's space-commander control box tunes TV sets from remote points

A unique two-mile long conveyor system at Motorola's Franklin Park plant

and its applications is breathtakin even when one considers only wha now appears reasonably certai Automation, which is practicall synonymous with industrial applic tions of electronics, promises spe tacular advances. It will increa production, possibly decrease cost and make more goods and servic available to people. While autom tion will free millions more peop from arduous work, it is general expected to increase employment. is expected to reduce the hours work, thereby increasing leisure tim

The era of electronic computer already arrived, will gain impetu Recording the accounting will b taken over by robots, freeing f other work the majority of millio now engaged in monotonous task Business procedures, industrial ope ations and fiscal data will be gather and analyzed through automatio

"All-automatic" Home

The "All-automatic" home, whi will be largely electronic, is on t way for many. The day's chores w be performed largely through el tronic appliances. Temperature, h midity and velocity of air in eve part of the home will be automa cally kept at desired levels and t air purged of bacteria and other co taminations. Electronic applian will do the cooking, dish-washing a laundry, and dispose of the waste.

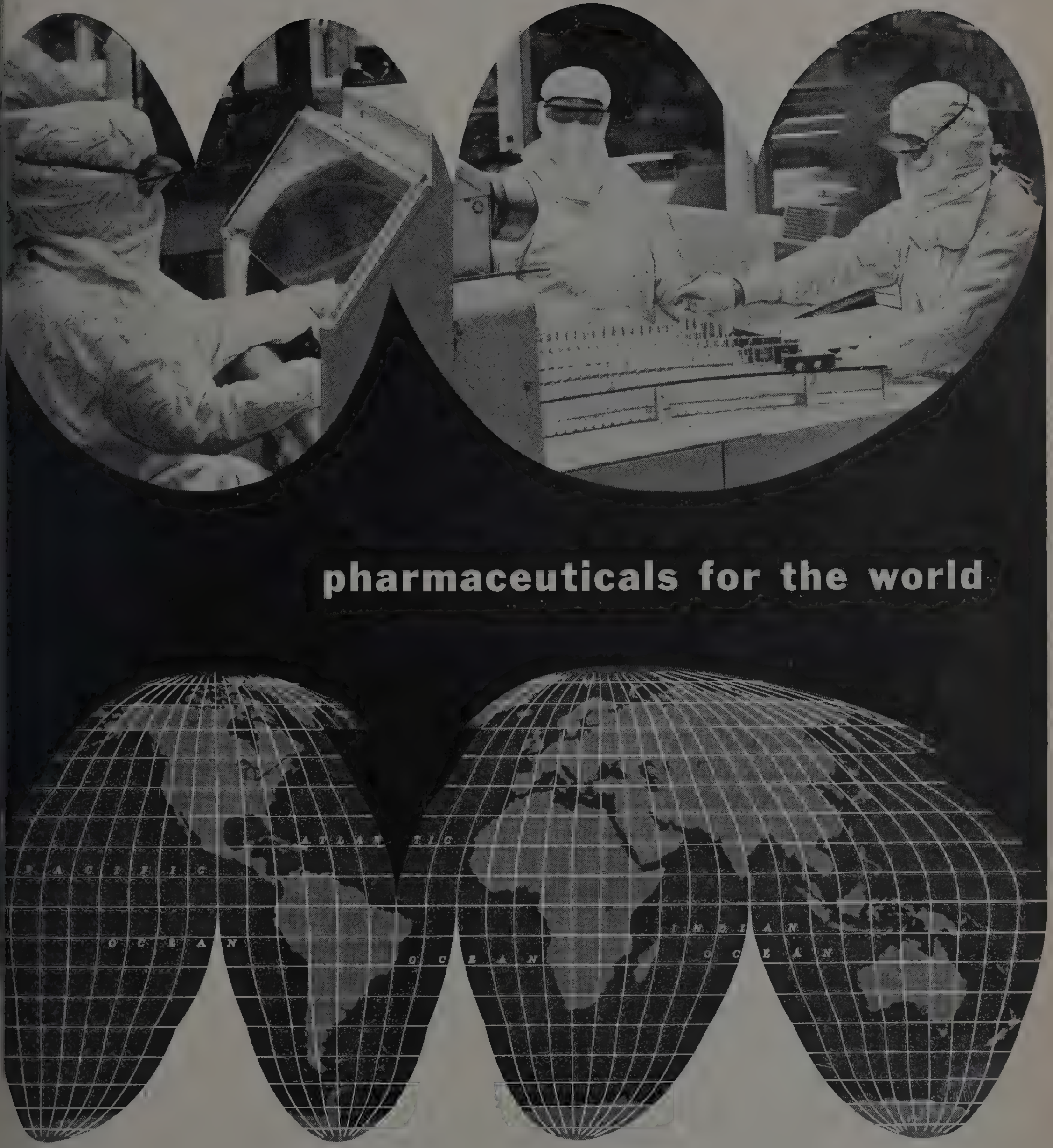
A new electronic air condition for example, employs a novel pr ciple in air cooling. It has a he absorbing action, instead of blowi in cool air. Small solid pieces of m terial called thermojunctions w take the heat out of the room wh a switch is turned on. This con tioner will be silent, with no movi parts, and can be placed as a pan anywhere.

Electronic eyes will watch weather and control window ope ing and closing. Garage doors will opened and closed electronical Television will be combined w telephony so you can see the pers you're talking to.

Electronic panels will be imp tant in the American home. Throu the development of electro-lumin cence, by which certain materi give off light when electricity is plied, rooms may be literally pa elled and painted with light of diff

(Continued on page 159)

from the Port of Chicago . . .



Products of Abbott Laboratories . . . anesthetics . . . antibiotics . . . nutritional supplements . . . hospital solutions and many more . . . find their way to every country in the free world.

Today Abbott looks forward to the increased growth and importance of the Chicago area as a center of creative industry and distribution, under the stimulus of significant new world-wide shipping facilities.

To keep pace with this widening international market, Abbott, too, has launched a program of expansion . . . to step up research, to increase production of the pharmaceuticals which are prescribed today—with confidence—by physicians the world over.

ABBOTT LABORATORIES / NORTH CHICAGO, ILLINOIS, U.S.A.

Radio-Pharmaceutical Division, Oak Ridge, Tennessee

the CHICAGO face known 'round the world

Chicago has ambitious salesmen.

One of them is the Quaker Man. He did not wait for the world to come to Chicago. He made Chicago his window on the world years before the first foreign steamer nosed up the Chicago River in 1931 and forecast the city's greatness as a world port.

The Quaker Man's world-wide market was boldly charted. His Company's stated goal in 1889 was to:

> *". . . scatter and diversify its business in all parts of the world and do educational and constructive work so as to awaken an interest in and create a demand for cereals where none exist."*

With a greater rapidity than many companies open domestic markets, the Quaker Man moved into Great Britain (1893), Continental Europe (1896), South Africa (1896), Australia (1898), Canada (1902) . . . and on to Latin America, Scandinavia, the Orient, Islands of the South Pacific. One country after another—one continent after another—began to know and respect the genial face from Chicago.

To the Quaker Man—Chicago has long since been the crossroads of the world.

the Quaker Man is the long familiar symbol of

THE QUAKER OATS COMPANY

MERCHANDISE MART PLAZA, CHICAGO

Push-Button Store Around the Corner

Electronic Shopping, More Prepared Foods Await Housewife

By

Phil Hirsch

HE grocery cart will be obsolete
in supermarkets 20 years from
now. This, at least, is the fond
be of food store engineers who are
rently hard at work preparing
he rather dramatic surprises for
American housewife. Here is the
t of store they're blueprinting.
nstead of sitting on shelves, most
d products will be stored in elec-
nic vending machines. The shop-
will merely insert a key into the
chine, push a couple of buttons
designate each item she wants,
l then take the key to a checkout
unter. Here, the key will be in-
ted in another electronic device
t: (a) automatically pulls the
ected items out of stock and brings
m to the checkout counter on a
nveyor; (b) totes up an itemized
l.

Preservation Technique

The "pushbutton store" is only
rt of the story. Food technologists
developing miraculous new pres-
ation techniques that, in the next
o decades, will remove the "perish-
le" label from some foods and
rply reduce the spoilage tenden-
s of many others. You'll be able
eat pork sausage, for example,
t has been sitting in your refrig-
tor, or maybe on the pantry shelf,
as long as nine months. Fresh
its and vegetables that your wife
ught weeks before will still be
sh when they appear on your
ble.
For a long time now, grocery stores have been grinding coffee to order. Tomorrow's supermarts will also barbecue chicken, squeeze fruit juice, and perhaps bake pies and cakes, while the customer waits. Milk will be sold in sterile cans, either as a liquid or powder, and stay fresh for weeks. Steaks, chops and innumerable other retail meat cuts probably will be put up by the packer rather than the store. Each type of cut will have standard weight and dimensions. Most important, the housewife will be able to buy her meat without fat, bone, and gristle if she wants it that way.

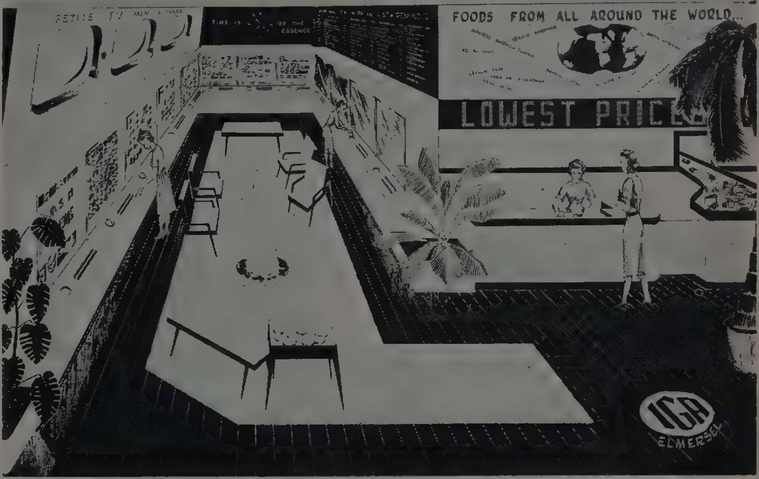
Increased Assortment

Quick-frozen dinners are now available, but in years to come there will be a tremendous increase in the assortment.

There is substantial evidence that this revolution in food technology and distribution, although a long way off in some cases, is definitely coming. The Independent Grocers Alliance of America, a voluntary group of some 5,600 food retailers, has developed an experimental electronic vending machine for the push-button supermarket. The device accommodates cans, bottles, and jars

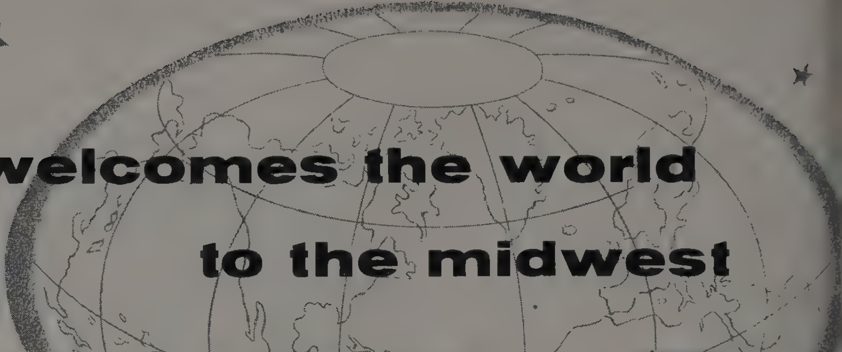
(Continued on page 238)

Disc-shaped "key" will record push-button selections, fill order


FOODS FROM ALL AROUND THE WORLD...
LOWEST PRICE
IGA
ELMERSEL

In tomorrow's supermart, shopper will push coded buttons, take "key" to counter where order will be filled electronically

agar welcomes the world to the midwest



With powder and steel . . . with monstrous shovels . . . with muscle and imagination . . . the Midwest carves a channel to the sea.

Soon deep-water ships from a hundred lands will unload the goods of the world at Chicago's door. They'll take on rich cargoes for overseas markets . . . cargoes that will include tons of pork products processed and packed by AGAR.

We, at AGAR salute this mammoth undertaking. It's progress, and we know the importance of moving forward. Our own company was built that way. Started on the ruins of the Great Fire, it has expanded steadily over the years, constantly growing in size and reputation. Today, AGAR is Chicagoland's leading independent producer of highest quality pork products.

agar stands with the Midwest to welcome the world to the heart of America

AGAR PACKING COMPANY • CHICAGO 9, ILLINOIS

The "L. S. Wescoat" of the Pure Oil Company fleet of tankers

nproved and new petroleum roducts coming your way

Higher octane gasolines, jet fuels, synthetic oils and new chemicals are some of the projects now underway

Ultraformer at Whiting, Indiana, refinery of Standard Oil Company (Indiana). Ultraforming is a catalytic reforming process

VERY gallon of gasoline poured
into a late model car produces
about 20 per cent more energy
a gallon poured into a similar
n 1936. Take one-fifth of your
ill last year and the significance
is statement becomes clear. Two
le are responsible: the automo-
engineer, who has been raising
e compression ratios ever
r; the petroleum scientist, who
een doing likewise to gasoline
e ratings.

the 1940-50 era, average engine
ression ratios were under 7:1
90-octane gasoline was good
h. Today, ratios are approxi-
y 9:1, and octane ratings are
aching 100. By 1965, say the
ts, new cars will have 12:1 en-
and gasoline will deliver at
20 per cent more energy per
than today's fuel. This, at
is one goal of petroleum industry researchers, many of whom are located in the Chicago area.

Taming the atom is another goal. At Sinclair's research center in suburban Harvey, the most powerful source of gamma rays to go into any industrial laboratory is being installed. Inside this "hot" lab, possible uses of atomic energy in petroleum refining will be studied. It will be years, Sinclair officials emphasize, before this research is likely to pay off, but the promise is exciting to say the least.

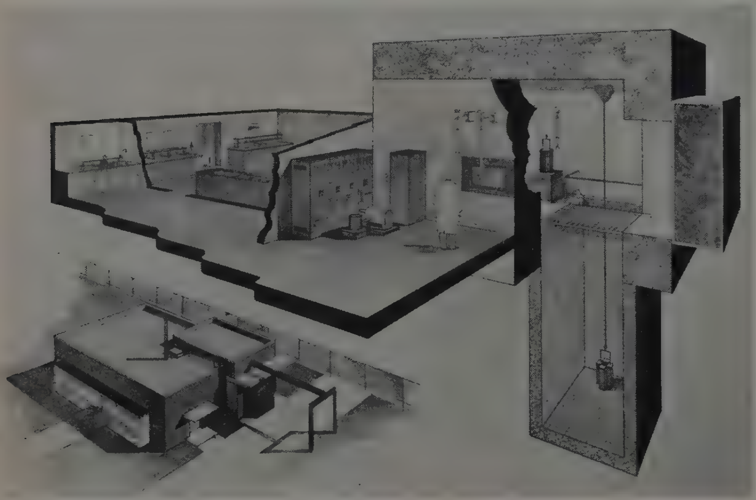
Atomic Irradiation

Perhaps through atomic irradiation, gasoline can be refined with less temperature and pressure. If it can, the cost to the motorist will be reduced appreciably. Another possibility is that yields from a given quantity of crude can be raised far above present levels. Still a third possibility is that new hydrocarbon compounds, presently unobtainable, will be discovered through the miracle of the atom.

Few oil men look upon nuclear energy as a competitor. Dr. Robert E. Wilson, chairman of the board of Standard Oil of Indiana, has explained:

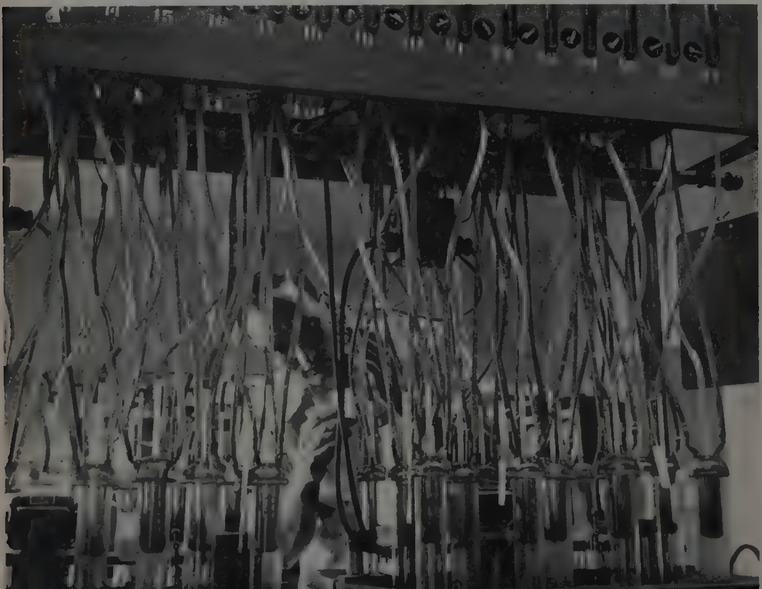
"The only important place where such energy is likely to compete with oil or natural gas in the next 25 years is in central power plants." And even if this happens, atomic power

The Pure Oil Company Lemont, Illinois, refinery. The two tall towers in the background are catalytic crackers and are used in production of gasoline and other oil products



Above: a cutaway view of Sinclair's new "hot lab" at Harvey, Illinois, which will study basic applications of atomic energy to petroleum products and processing technology

Below: a research project based on the accelerated aging of special-purpose lubricating oils underway at the Whiting laboratories of Standard Oil Company (Indiana)



would have little effect on the ind try's present markets, he said.

Jet fuel is another story, howev One of the nation's important c ters for jet fuel research is Univer Oil Products Company, in suburb Des Plaines. The importance UOP's work may be gauged fr two simple facts: (a) the biggest u of jet fuel today is the United Sta Air Force; (b) U. S. airlines are n awaiting delivery of 138 jet power planes costing more than $800 m lion. It is estimated that by 1960 demand for jet fuel will be 14 m lion gallons a day, and that by 19 it will be 17 million.

Universal scientists haven't forg ten gasoline, their first love. One the latest techniques developed UOP is the "Penex" process wh takes gasoline with an initial octa rating of 78-94 and raises it to a h of 104. Another new UOP proc "Rexforming," takes partially fined gasoline with an octane rat of 20-65 and raises it as high as octane.

Cost Reduced

Both processes are particularly nificant because they reduce ap ciably the cost of making 100- octane gasoline. Older methods, u mainly to turn out aviation f would pose tremendous econo and production problems today refiners had to rely on them souped-up automobile gasoline.

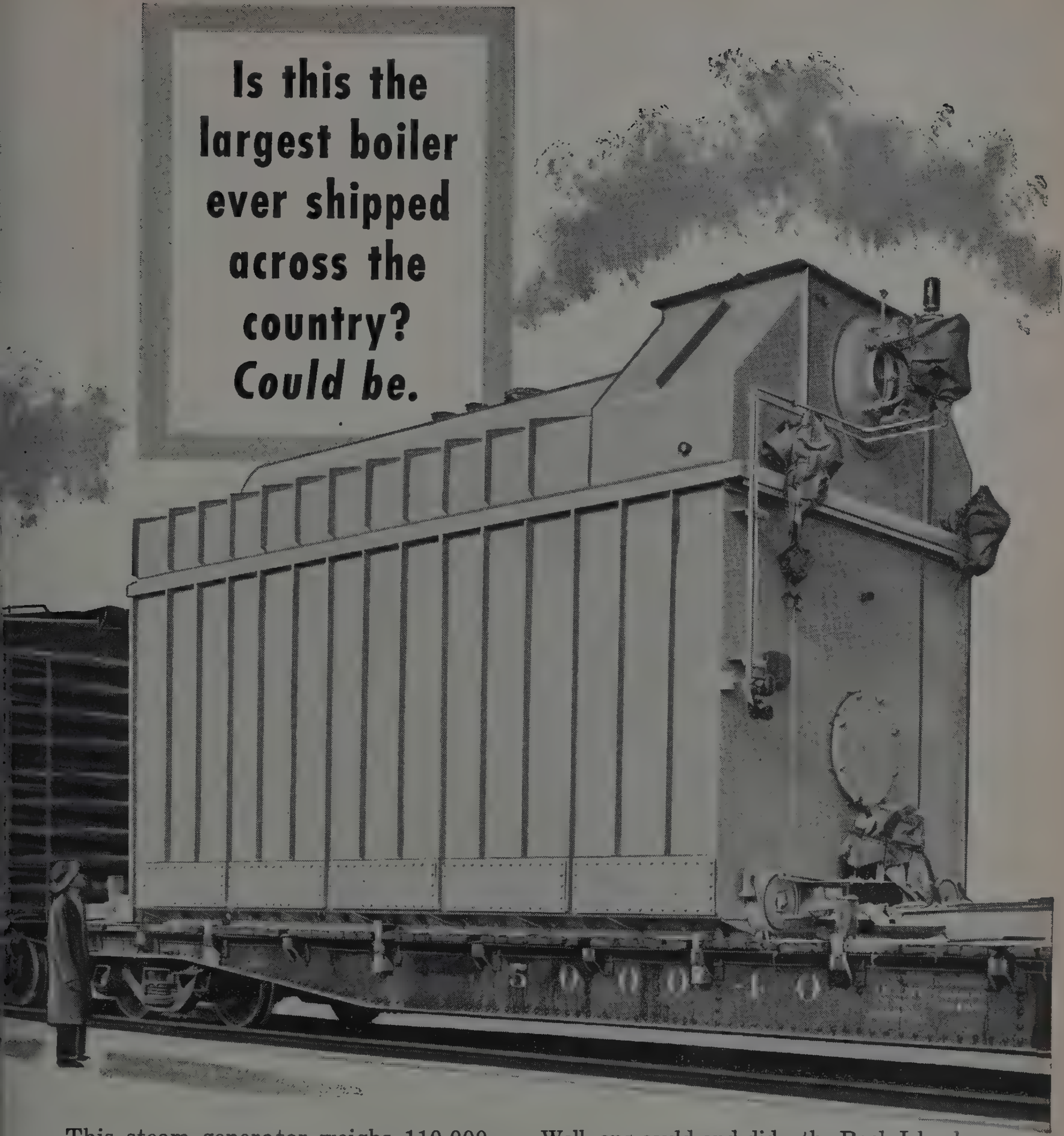
Standard of Indiana also has a high octane process, known as "Ul forming." The first Ultraformer w into service at the Whiting refin late last summer. A second is under construction. The two u will have a total capacity amount to some 35,000 barrels a day.

Higher compression ratios m less space for the fuel-air mix and, consequently, higher temp tures and pressures in the com tion chamber. As temperature pressure increase, control of the act instant at which burning of fuel begins becomes more and m critical. That is, it becomes more more difficult to control engine kn and the resultant loss of power.

Adding to the complexity of problem is the build-up of com tion chamber deposits. These c from the gasoline that flows thro the combustion chamber, plus th

(Continued on page 170)

Is this the largest boiler ever shipped across the country? *Could be.*



This steam generator weighs 110,000 pounds. It is 24 feet long; 11 feet 8 inches wide; 15 feet 6 inches high.

Over 11 feet wide! Over 15 feet high! That's really reaching outward and upward. Wonder how many railroads operating from, say, Chicago to the far west, could transport this huge object?

Well, one could and did—the Rock Island Lines. This road had the necessary right-of-way clearance over its entire east-west line!

The role that the Rock Island played in this 'cross country hauling drama was instrumental in getting the mammoth boiler to its west coast home, where its job is to heat an entire business district.

If you have any freight shipping problems why not see how Rock Island can help you?

Rock Island

ROCK ISLAND LINES

The Road of Planned Progress... Geared to the Nation's Future

To Serve You Better...

The Prudential INSURANCE COMPANY OF AMERICA
MID-AMERICA HOME OFFICE · PRUDENTIAL PLAZA, CHICAGO 1, ILLINOIS

LIFE INSURANCE · ANNUITIES · SICKNESS AND ACCIDENT PROTECTION · GROUP INSURANCE · GROUP PENSIONS

Chicago Tribune officials check color register of Sunday section. Color registration is controlled by electronic panel board in background

Printing Industry Stands On Threshold of New Era

Plastic "paper" and new printing processes on the way

RINTING technology stands on the brink of a third revolution almost as far-reaching as the t two — the invention of movable e and the later development of ecasting machines and rotary sses.

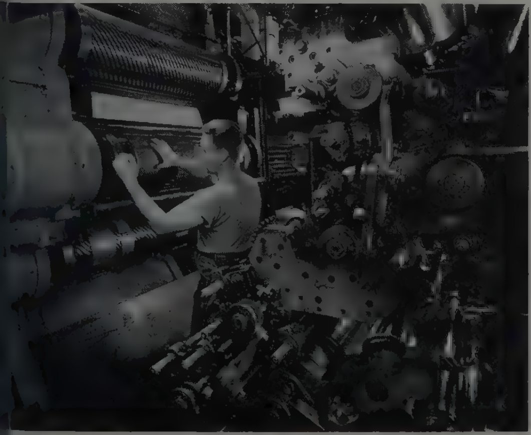
Ten years from now, sooner prob- y, most newspaper ads should be color; even the smallest county t weekly undoubtedly will have or on several pages. Big-city dailies y be reporting events that occur little as half an hour before the er reaches the newsstand.

Books will be covered in plastic; g-eared corners and cracked bind- s may be a thing of the past. Al- dy, plastic coated covers are in le use here, and in Europe all- stic bindings have been developed, ort officials of Brock and Rankin, icago's largest exclusive bindery, l operator of one of the most mod- plants in the country.

n the print shop, ten years from v, metal type, together with the nposing machines that manufac- e it, are likely to be either gone almost so. And in 20 years we may reading from plastic "paper" in- d of the natural product. About same time, research engineers l be removing the final bugs from techniques that use magnetism, optics, and/or electronics to put the type impression on paper. A printed page will be produced directly from copy instead of going through the present multiplicity of steps.

One experimental direct-transfer technique, known as "zerography," is now employed in office duplicating machines; another, "smoke printing," turns out engineering drawings for

(Continued on page 188)



king plates into a magazine press at R. R. Donnelley & Sons

Randtome permits direct transfer of message to photo negative

Chicago — Confectioner To World

Rise in Candy Consumption Presages Big Growth For Industry

A GROWING America's bigger sweet tooth promises to keep Chicago in the forefront as the candy capital of the world. Located here are the best known names in the confectionery business, producing between a quarter and a fifth of all the nation's candy. New products, improved manufacturing techniques and a watchful eye on the national palate have combined to boost Chicago candy making to a close to half-billion-dollar industry.

The nation's largest manufacturer of chocolate coated bars is Mars, Inc. Biggest producer of chocolate covered cherries is E. J. Brach & Sons, who account for some 10 per cent of all bulk and packaged chocolates and candies consumed in the country, not including bars. The top maker of caramel suckers is M. J. Holloway & Co. Other prominent candy makers are Bunte Bros., Chase Candy Co., Curtiss Candy Co. and the Williamson Candy Co.

Average Consumption

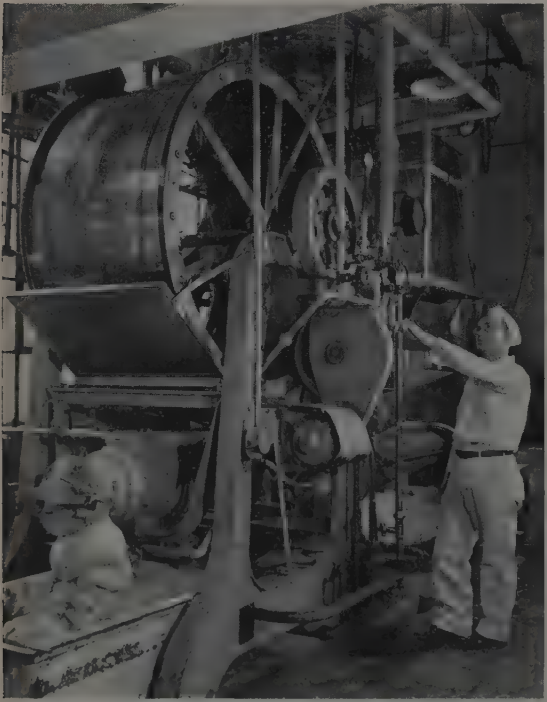
The average American consumes 17 pounds of candy a year, an appetite that places candy consumption at a little over three billion pounds for the nation by 1960! At this rate, population increases will bring total consumption to 3.76 billion pounds by 1975. If the average citizen adds just a few more bars or chocolates to his daily snacks and raises his consumption by only half a pound a year, Americans will be eating 4.2 billion pounds of sweets by 1975. Illinois, incidentally, ea more than the national average, f the per capita figure in the state 20 pounds a year.

Dollar-wise, these projectio mean the industry can expect a $1 billion wholesale volume by 19 and an increase of 25 per ce to $1.4 billion by 1975, at curre price and consumption levels. cording to the National Confectio ers' Association, if price levels r three per cent annually, volu could reach $2.5 billion by 1975.

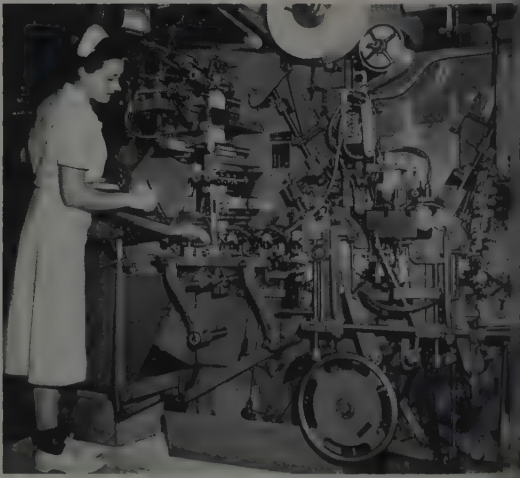
To satisfy the national sweet to and become a mass industry, can making had to turn early to use the machine. Ingenious and hig specialized equipment has been veloped to replace such delic hand skills as taffy pulling, and C cago also is a center for the prod tion and supply of confection equipment.

Industry spokesmen anticipate even greater trend toward mecha zation over the next two deca with increasing use of electronic a automatic equipment. Automa

(Continued on page 227)



Mechanization has helped build Chicago candy industry to world's largest. Fondant machine, Williamson Candy Co.



Fully automated, this Curtiss Candy Co. machine sorts and packages varicolored fruit drops

...but one thing will never change

No matter what new buildings arise on Chicago's land, one thing will never change.

The land itself.

Chicago Future, no less than Chicago Past, will need solid ground to grow on:

- Records of title to every foot of land—who owns it, and how he acquired that ownership.
- The confidence that every real estate title will be protected, ownership rights insured.
- Ready financing, impossible without such insurance.

Here, then, is this company's role. To those who will shape Chicago's New Horizons, we offer this assurance:

Chicago Title Insurance Policies are backed by more experience and greater financial strength than any other title protection you can have.

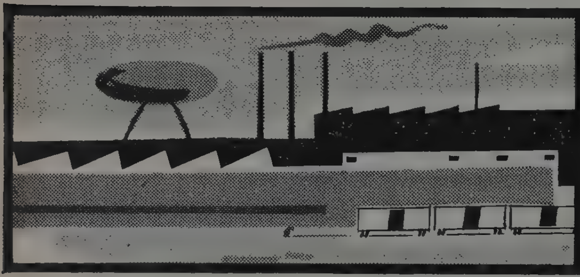
Title to this property
INSURED
BY
CHICAGO TITLE
AND TRUST
COMPANY

Chicago Title *and* Trust *Company*

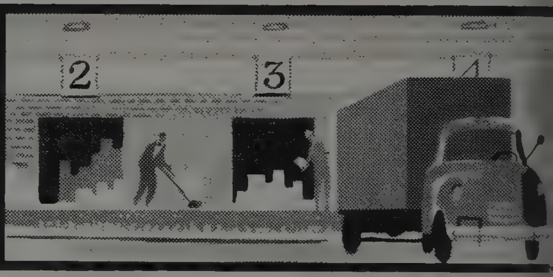
111 WEST WASHINGTON STREET • CHICAGO 2, ILLINOIS
ge *County Division,* 120 East Liberty Drive, Wheaton   *Lake County Division,* 26 North Utica Street, Waukegan

A LITTLE MORE IMAGINATION

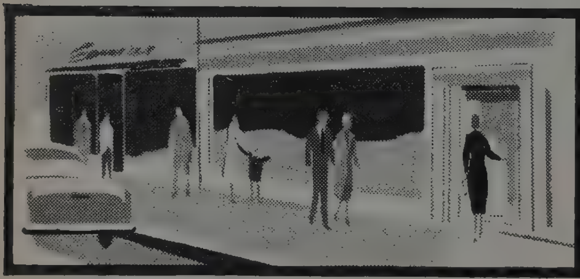
CHICAGO NATIONAL FINANCES ALL FOUR!



1. *THE MANUFACTURER*



2. *THE WHOLESALER & JOBBER*



3. *THE RETAILER*

4. *THE CONSUMER*

and the first 3 can't do any business without adequate attention to the fourth

Chicago National Bank has unique facilities to complete the circle from manufacturer to consumer. It's our business to lend money and we extend credit to the consuming public as well as to the manufacturer and those who move the goods. It took imagination to pioneer personal loan service in Chicago 39 years ago, and today we continue to make practical use of imagination in our operations. Whether as an individual or a company, we think you'll like our kind of banking service.

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Prefabricated metal panels increase the speed and cut the cost of construction work

Industrial construction techniques, such as pre-formed steel deck units, will be used more in residential work

uilding Materials Industry Expects Big Increase in Volume by 1965

By

Victor J. Danilov

you wanted to know what the
ouses, offices, and factories of
omorrow will look like, where
d you go to find out?

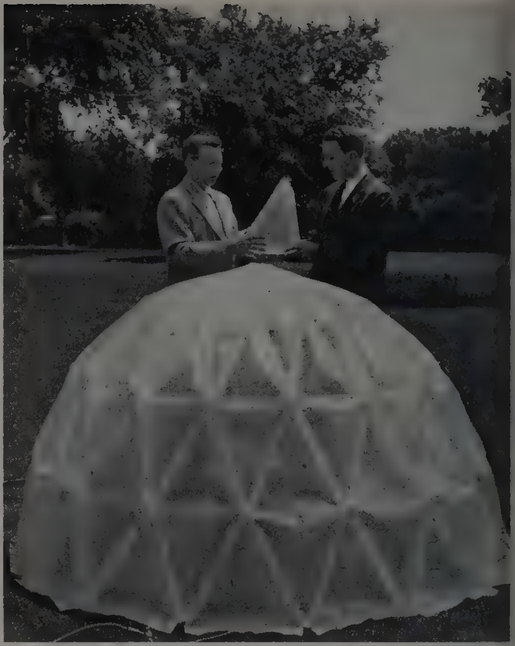
all probability, it would be
ago — pioneer in architecture
construction, and capital of the
ding materials industry.

icago earned its reputation as a
r in architecture and construc-
by taking the lead in aesthetic
technical innovations. Its pio-
ng achievements go back as far
337 — the year Chicago ceased
g an outpost clustered around
Dearborn and emerged an incor-
ted community.

was during this time that the
first builder, George Washing-
now, invented the balloon-frame
od of construction, which be-
a vital factor in the rapid
th of Chicago and the rest of
nation. Snow's system of wood

Cellular panels, which carry the electrical, heating, and air conditioning systems, eliminating the need for separate raceways and ductwork, are the latest for floors. Here they are being installed in new Inland Steel building in downtown Chicago

A new lightweight ceramic building block developed by Armour Research Foundation of Illinois Institute of Technology has stability, excellent acoustical and heat insulation properties and can be produced in different colors



Inflatable plastic "bricks," invented at the University of Illinois, offer great promise as inexpensive, lightweight, rigid structures to cover gardens, drive-in theaters, ball parks, and other such areas for year-around use

framing — faster and cheaper than the girth method — enabled America to build the housing needed to develop the frontier and, later, the metropolitan areas.

The Chicago Fire of 1871 brought about a great many other construction innovations, as it became necessary to rebuild virtually the entire city at one time. Chicago met the challenge by constructing thousands of new structures almost overnight, and by developing such new materials and techniques as:

Hollow tiles for floors, partitions, and iron beam and column covers, thereby making buildings fire-resistive for the first time.

Caisson foundations carried to bedrock, leading to faster and safer construction in treacherous subsoil.

Equipment and methods that made it possible for construction work to continue throughout the year in all types of weather.

Among the other developments first used widely in Chicago were power-driven elevators, interior steel framings, and around-the-clock construction resulting from the invention of the light bulb.

It was in Chicago, too, that the modern skyscraper was born. Lighter and higher buildings became the style following William LeBaron Jenny's development of a complete iron and steel framing for the Home Insurance Building in 1885. The Maitland 1893 "Dictionary of American Slang" defined the word "skyscraper" as a "very tall building such as are now being built in Chicago."

It also was during this period that the "Chicago-style" of building design evolved. The style first began to take form through the work of Richardson, Root, and Burnham. The Marshall Field wholesale store, the Rookery, and the Monadnock Building were typical of the structures with interior iron and steel framing and exterior bearing wall of stone or brick. The office-store-warehouse building movement was culminated by Sullivan's still-beautiful Carson Pirie Scott retail store.

Pioneered Modern Hotel

Meanwhile, the modern hotel and apartment building was being pioneered in Chicago by Theodore Starrett and Clinton Warren. Starrett's Hyde Park Hotel became the first completely fireproof and steel-framed building that contained steam heat, electricity, movable partitions, and other innovations that since have become commonplace.

It was around the turn of the
century that Frank Lloyd Wri
moved to the Chicago area and b
a series of residences with low h
zontal proportions and strongly
jecting eaves which became fam
as his "prairie style."

Wright's work, from the be
ning, was radical both as to struct
and aesthetics. In addition to i
grating machine methods and m
rials into a true architectural exp
sion, he was the first to produce o
planning in houses and to achi
a three-dimensional form by the
of walls and roofs as mere enclos
planes.

Wright was followed to Chic
some 45 years later by Ludwig
van der Rohe, who came from
many to head the architecture
partment at Armour Institute
Illinois Institute of Technology

Mies van der Rohe quickly m
his "form follows function" archi
ture the talk of the country.
buildings were distinguished by th
simplicity and their emphasis on
terior steel framework and g
planes of glass. Among his most
mous works are some 20 buildi
on the Illinois Tech campus and
860 Lake Shore Drive Apartme

Accompanying these tremend
advances in architecture and
struction in Chicago has been

ly growth in the building mate- industry. As a result, there are 1,200 firms in the Chicago today producing one or more he 600 different items utilized onstruction.

he Chicago area also has become nter for research in building ma- ls. In addition to the labora- s maintained by individual s, research is carried on by such known organizations as the land Cement Association, the ctural Clay Products Research ndation, the Cook Research Lab- ories, and Armour Research ndation of Illinois Institute of nology.

is against this impressive back- nd that Chicago faces the fu- . . . and gives direction to the on's architecture and construc-

ut the challenge is great!

ere is the outlook for the next 10 s as pictured recently by F. F. tt, Crane Co. board chairman:

early 6 million families will be d to the nation's population.

he number of dwelling units will ease by about 9 million.

New housing starts will be running at the rate of 1½ million per year.

Plant and equipment expenditures, on an annual basis, will increase nearly 50 per cent.

Nowhere in the country will the impact be felt more than in Chicago.

Total Construction

The Bell Savings and Loan Association, which has been conducting monthly surveys of new building in the Chicago area since 1932, reports that total construction climbed from $254,032,783 in 1946 to $1,158,407,686 in 1956 in this region. There is every reason to expect at least as much of an increase in construction in the next 10 years.

The building construction that will be required to meet these needs — in Chicago and the nation — will shoot the construction industry's annual dollar volume from $44 billion to $59 billion, according to ENGINEERING NEWS-RECORD, building trade journal.

But it will be the building materials and techniques that will determine the shape of tomorrow's buildings. More than 30 years ago Walter Gropius of Germany's Bauhaus wrote that architecture is no longer an art built on handicraft. He said architecture deals with an assembly of ready-made manufactured products, and that the character of the assembly is determined by how the individual product is designed.

What Gropius said three decades ago is even more true today, necessitating the closest of relationship between the architect and the manufacturer. This is illustrated in the construction of the Inland Steel Company Building, the Prudential Building, the Chicago Sun-Times Building, and many ultra-modern apartment buildings springing up along Lake Shore Drive.

Among the many innovations being utilized in the 19-story Inland Steel Building—a steel skeleton with no interior columns — are a number of materials and practices that will see wide adoption in the next decade. They include:

Steel H-beam bearing piles were used for the foundation instead of

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concrete or timber piling, or conventional concrete caissons.

The main column supports are on the outside face, like giant ribs, instead of being enclosed within the building.

The exterior columns are connected at each floor with 58-foot girders, thereby eliminating the need for interior supports.

The exterior walls are of lightweight stainless steel, backed by only two inches of concrete fireproofing — and double-paned glass. This combination curtain wall weighs only 25 pounds per square foot, compared with 40 pounds for masonry walls and high window sills.

Interior walls will be movable steel partitions, providing maximum flexibility of office arrangement.

As much of the building as possible was prefabricated to speed construction and cut labor costs.

No riveting was used in the construction. Field splices of the building columns and field connections of the framing members were either welded or bolted, keeping the construction noise from rising much above the normal street sound level.

Cellular panels of 16-gauge galvanized steel, topped with 2½ inches of concrete, form the lightweight floor. The finished floor covering will be laid over these panels. Longitudinal raceways in the sub-flooring distribute the electric and telephone services and hot and cold air to the perimeter of the building.

Air Conditioned

The entire building will be air conditioned, with hot and cold air being distributed in separate ducts to the office area where they will be mixed to the desired temperature in sound-attentuating chambers. The air then will enter the cells in the steel deck — making it a radiating element — and travel to perimeter grills for distribution.

To keep the building clean, window washing will be done with the aid of a special scaffold lowered and raised mechanically from a crane running on tracks around the edge of the roof.

All of the building's utilities, elevators, and services are housed in a separate, windowless 25-floor tower.

To achieve these ends, the building's architects, manufacturers, and contractors made the most of e ing materials and techniques, then added new features wher feasible.

The same could be said for United States Gypsum Compa Research Village, consisting of experimental houses, constructe a wooded plot near suburban rington.

The houses were designed by leading architects and constru by six builders with a single o tive: to develop new ideas that improve the livability, safety, value of tomorrow's modest- homes.

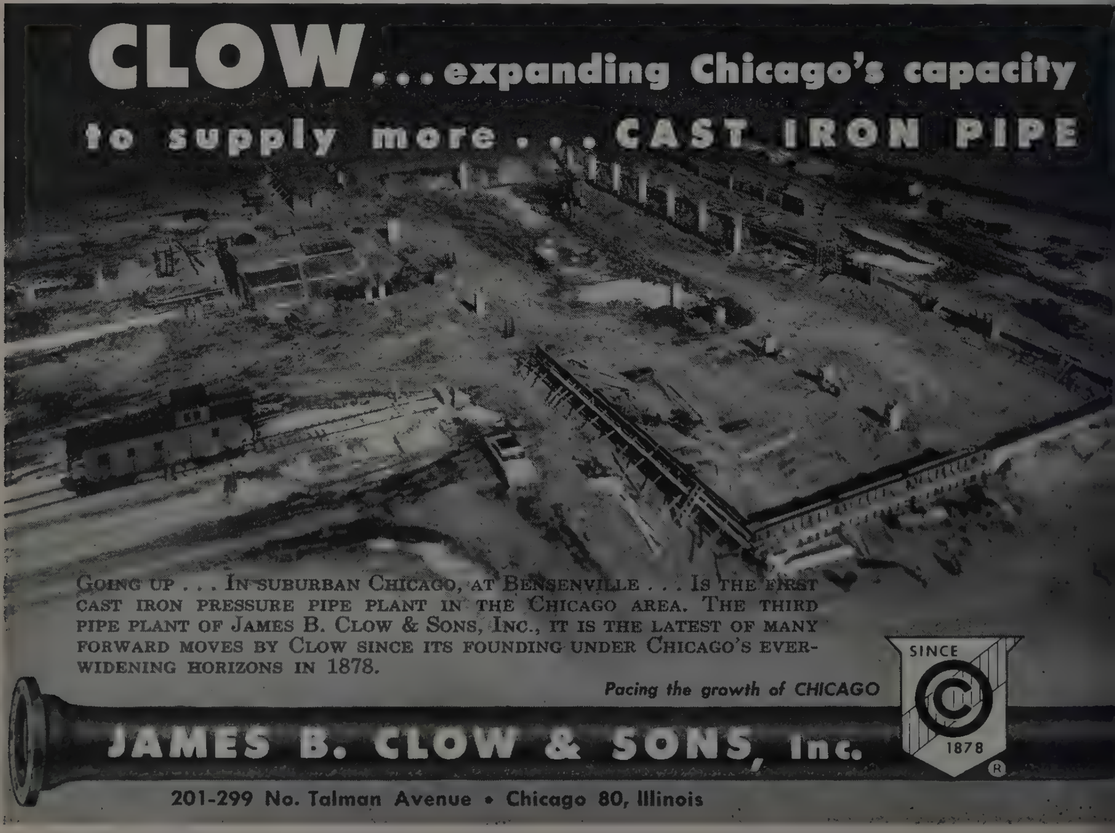
Each of the experimental ho is different — each reflecting the agination, ingenuity, and know- of the architect, the builder, the sponsor.

Here are some of the new resi tial construction materials and t niques used in one or more of structures:

Roof of pre-formed steel units, lightweight and quickly e ed, welded to open-webbed jois

Non-load bearing interior wal small diameter steel rods and pla

Concrete roof slab, formed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Pacing the growth of CHICAGO

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poured atop the foundation slab, and lifted by six hydraulic jacks to roof level. Steel brackets then welded to steel columns to hold roof in place.

Gypsum planks to cover the roof and floor. The planks, together with the use of concrete block walls and steel frames, make the frame completely incombustible.

Concrete floor slabs with perimeter insulation, incorporating electrical conduit, plumbing, and sometimes heating ducts.

Automatic de-icer system for driveway and walk.

Laminated wallboard system, with gypsum wallboard being cemented to base layer of backing board.

Generous use of glass to brighten and visually enlarge interiors.

Some of these methods already are being practiced; others are certain to receive greater consideration in the future.

Some interesting views on the house of tomorrow were expressed recently by Jay Doblin, director of Illinois Tech's Institute of Design and former executive designer with Raymond Loewy Associates. He believes that the average house 10 to 15 years from now will be built around prefabricated "service cores."

Mr. Doblin points out that every house has the equivalent of a food core, power core, bath core, entertainment core, and communications core, and most of these are laboriously and expensively assembled at the home site. "These cores should, and will, be available as complete units which can be installed easily at reasonable cost," he states.

In Mr. Doblin's house, all ducts, conduit, plumbing and the like, would be placed in a trough around the house's perimeter. The cores which carry all mechanical equipment simply would be plugged into the trough. The designer also foresees greater use of plastics, glass, and other new materials.

Dream houses proposed by the General Electric Company and the Monsanto Chemical Company seem to back Mr. Doblin's beliefs. In 1954 General Electric revealed its impression of the "1964 American Home." The design, GE stated, was based on predictions that the average American family ten years hence will be larger, have a higher income, l in the more distant and open s urbs, have more leisure time, and gage in more family activities, h bies, and entertainment.

GE's model house was built alm entirely of prefabricated plas panels. It had an unusual stres skin roof, 15 feet high at the pe requiring no bearing partitions. roof, which also was the ceiling, tended far beyond the outside wa thereby protecting them from sun and rain.

No Bearing Partitions

The lack of bearing partiti made possible any arrangement outside walls and room partiti over the 1,700 square feet of liv area. The house had a large livi dining room with a dramatic tating living circle, adjoined by c similar to those envisioned by D lin.

Other unusual features inclu glass walls on the front and b of the house, an outdoor elec center, built-in ducts, molded pla sinks and bathtubs, automatic l pump, wall-mounted appliances, mote television monitors, and minous wall panels that cha colors.

Monsanto's "House of Tom row," announced last year and being built at Disneyland in A heim, Calif., is somewhat similar that it makes liberal use of pre rication and plastics. The hous based on molded 8x16 feet mod which are curved to form the ceil wall, and floor. In the simplest p 16 modules are cantilevered fro 16-foot-square utility core to f four 16-foot-square rooms. The contains kitchen, laundry, heat and bath facilities.

Several combinations of the c ponents, including twin cores, m possible a variety of floor plans flexibility. Rooms may be adde removed easily and economicall conform with a family's chang space needs.

Some of the more interesting tures of the Monsanto house of future are:

A zone-controlled, year-aro air conditioning system that w harmonic scents and makes dust unnecessary.

Floors and walls combining co

(Continued on page 262)

QUOTATIONS
or FLOTATIONS

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"Youngstown" creates new horizons

IN CHICAGO

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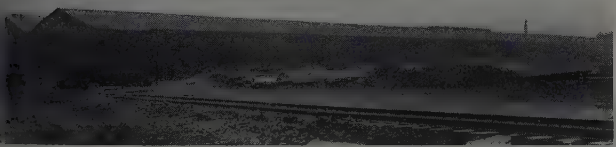
Thirty-three years of sinking our roots deeply in this vast industrial area—thirty-three years of building for the future.

Pictured below is proof, that in this year of 1957, "Youngstown" is continuing to "create new horizons"—continuing to believe strongly in the future growth and prosperity of the Chicago area.

bve: Construction of New Coke Ovens.

ht: New Boiler House Nearing Completion.

QUALITY YOUNGSTOWN SERVICE



e: Partial view
w Seamless Mill.

it: New Tin Mill.

ircle: One of the
d's Largest Blast
aces.

THE YOUNGSTOWN SHEET AND TUBE COMPANY Manufacturers of Carbon, Alloy and Yoloy Steel

EAST CHICAGO — YOUNGSTOWN — SOUTH CHICAGO

Industrial Development

(Continued from page 53)

tinue. Opportunities for recreation, and for cultural and educational development, must also be present. Chicago's abundance in these has more than kept pace with its ability to produce goods or provide services. The city has had a balanced progress.

The significance of the billions of dollars invested in new plants in the six-county Chicago metropolitan area can hardly be overemphasized, because, as already stated, the selection of a site involves wide freedom of choice for most managements.

During World War II the Chicago area was the site of more new plant construction than any other area. A total of $1,170 million was spent here for land and buildings, exclusive of equipment. But with the end of the war the industrial development has continued and grown. Nearly three times the wartime total has been announced for land and buildings since the war ended in mid-1945, and in 1955 and 1956 alone, projects were announced for plant expenditures of nearly $1,117 million.

The extent of Chicago's leadership is indicated by comparison of 1956 industrial construction contract awards with those of other major industrial areas. According to a Commonwealth Edison Company tabulation of contract awards of $100,000 or more, reported in Engineering News-Record, Chicago was first with $512.3 million for 57 contracts. Baltimore was second with $205.4 million for three contracts, one of which was for a $200 million expansion of Bethlehem Steel's Sparrows Point mill. Excluding Baltimore, Chicago received contract awards exceeding those of the next thirteen metropolitan areas in the United States, including Los Angeles which was in third place with $90.9 million. In dollar value, the Chicago area had more contract awards in 1956 than any other metropolitan area had for the entire postwar period except Philadelphia-Camden.

Chicago's industrial base is varied and solid. In 1953 Chicago captured the title of world's champion steel producer, and recently has taken
leadership in petroleum and
products industries. The Chic
area is first in production of fa
cated metals and the leader in
chinery production other than e
trical machinery, in which it ra
second.

Chicago is also second in the
duction of furniture and fixtu
food and kindred products, chemi
and allied products, paper and al
products, and printing and publ
ing and allied industries. It ra
from third to fifth in six of the r
remaining census bureau indust
classifications.

The geographical pattern of fut
growth is reasonably clear. Che
cals and allied products that use la
quantities of bulky raw mater
will tend to follow the location
the basic heavy industries – st
making and petroleum and
products – an exception is the p
maceutical industries which h
tended to move to the north side
northern suburbs.

Postwar industrial expansion
conventional type plants, with
exception of those in organized
dustrial districts such as the Clea

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314 No. BROADWAY

and Central Manufacturing districts located on the southwest side of Chicago and in adjacent suburbs, occurred largely on the city's west, northwest and north sides, and in contiguous suburban areas.

Completion of the waterway projects, discussed at length in other articles, will stimulate the expansion of heavy industries — steel, petroleum and chemicals—near the present steel mills and refineries at the southern end of Lake Michigan and in the neighborhood of Lake Calumet.

The new network of expressways now under construction is having and will continue to have a profound effect on the location of new industries. The factor of rapid vehicular transportation around highly populated areas, and to and from the downtown area, will tend to push industrial plants further from the core of the city and, conversely, may cause service industries to concentrate at the core.

Open Areas

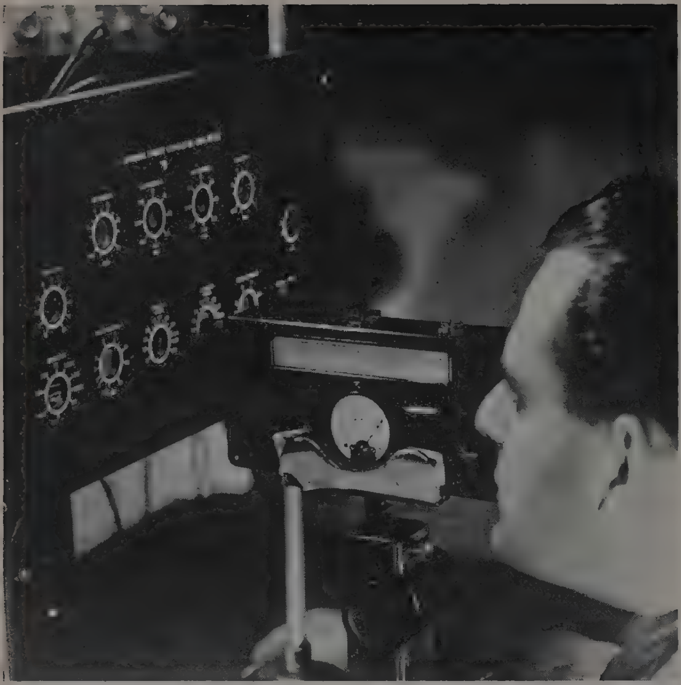
The new expressways will accelerate the development of open areas between the railroad lines that long were the links between suburban communities and Chicago. Industrial operations that do not find it necessary to be on a railroad siding will tend to locate along the expressways because of the transportation they provide, the availability of larger tracts of land at reasonable prices, and the presence of new labor pools. The conventional type of "good looking" plant will be found from nearby suburbs to Fox River valley and on up to northern Cook County.

The rehabilitation of Chicago's blighted areas will be a factor of considerable importance in contributing to industrial growth. Hundreds of acres of slums are being replaced in many instances by land cleared for industrial purposes, as, for example, the area in the vicinity of Canal street and the new Congress street expressway where construction of new industrial plants is under way.

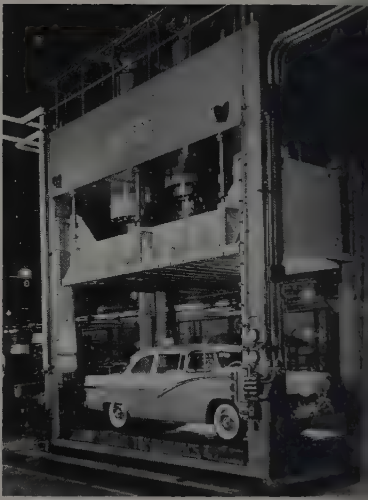
With its favored location in the midst of an abundance of agricultural and natural resources; with the finest transportation system in the world; and with the expressways, airport expansion and various other civic improvements, Chicago has every reason to stay far out in front in industrial leadership.

Forecast f

Sales volume of plast



The Luckiesh-Taylor meter (above) which is part of the G. Felsenthal and Sons, Inc., laboratory, is the only one in the midwest approved by the U. S. Bureau of Standards for testing edge-lighted aircraft panels



General American's large plastic press. I
livers a pressure of 1,000 tons

FORECASTS of the future of Chicago's plastics industry are startling in their optimism, but no one who knows the spectacular postwar history of the industry would dare challenge them.

Plastics are now part of the American way of life, but this has come about almost unnoticed. A new synthetic fabric, like Dacron, gets a lot of attention for a while but there's no fanfare when a plastic gear or part replaces a similar part made of metal. Much of the development in plastics has been in uses that are unspectacular and unnoticed. The physical growth of the industry in a city as vast as Chicago has likewise been easy to overlook. Plants have expanded and many new ones have been built, but they are widely scattered. Grouped together they would be impressive indeed.

Yet the plastics industry is only getting under way. The magazine CHEMICAL WEEK declares that plastics sales volume will grow twice as fast as sales of the chemical industry as a whole and five times faster than sales of U. S. business as a whole. Another leading trade publication, MODERN PLASTICS, predicts that by 1960, sales of some of the most commonly used plastics will show the following gains: phenolics, up 40 per cent from present levels to 200 million pounds; cellulosics, up 30 per cent to 660 million pounds; urea-melamines, up 30 per cent to 390 million pounds; vinyl chloride, up 80 per cent to 950 million pounds. Increases of 100 to 300 per cent are predicted for such plastics as polyethylene, acrylics, nylon and epoxies.

Moderate Forecasts

These forecasts appear moderate against the background of the actual growth that has taken place. As an example, the production of synthetic resins rose in less than 20 years from under two million pounds to 3½ billion pounds.

Plastics producers say that a good share of the industry's growth in the next few years will come from the replacement of items now made of other materials. Take automobiles. Within the next ten to 20 years, it is asserted, cars will have plastic roofs and fenders, all-plastic interiors, and perhaps all-plastic bodies. In the next five years alone, according to one estimate, the use of plasti
each new car will rise 50 per cen

Public transportation vehicl
everything from airplanes to su
cars — will also use much more
tic than they do now. Pull
Standard's new "Train X" has
tic covered walls, floors, ceiling
window trim, and plastic is use
tensively in the electrical system
Pullman-Standard official forese
day, and it is not far off, he bel
when train windows will be ma
transparent plastic, and lavator
tures will be made of similar
rial.

Other predictions include
Americans will eat most of their
from all-plastic dishes set o
plastic tables; will live in homes
largely of plastics; will sit on p
furniture and sleep on plastic
and plastic-covered mattresses.
dios, television receivers, and
appliances generally, will be h
almost completely in plastic cab
and far more plastic component
be used in them than is now the

Chicago is a gigantic job shop
ble of making just about any

astics: Boom Today; Zoom Tomorrow

ustry expected to grow five times faster than sales of all U. S. business

lastic, and it is in a most favor- position to continue a leader in remarkable industry. Substan- segments of the nation's commu- tions, radio-TV and home appli- industries — among the largest of plastics — are located here. not too far away, in Detroit, is utomobile industry.

ıt Chicago is also the most di- manufacturing complex on n. For an industry like plastics, h is on the threshhold of many applications in a host of new s, this diversity is important. It plastics producers and processors in close contact with the maxi- n number of potential product ications.

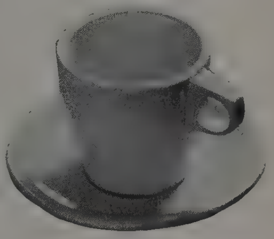
Plastic Sofa Shell

ot long ago, General American nsportation Company molded at plant in East Chicago the first ic sofa shell for Kroehler Manu- ring Company, in Naperville. nwhile, another Chicago area ucer, the Richardson Company, duced a plastic dresser drawer. se applications are regarded as unners of many more in the iture industry. Molded plastics hair frames and furniture legs, xample, and laminated plastics esk and dresser tops. Since Chi- is the furniture capital of the try, the area's plastics firms are ly situated to share in the vast et potential offered by the fur- e industry.

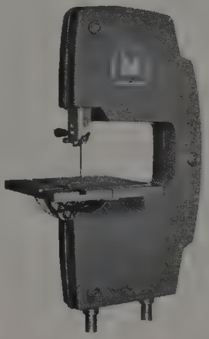
he food industry, the chemical stry, and others in which Chi- is strongly represented, are ex- ed to provide new or greatly nded markets for plastics. In the industry the present sizeable of transparent plastic packaging rials should grow with the self- ce trend. Food processors and hemical industry are using in- ing quantities of plastic pipe use of the superior corrosion ance. The Chicago area manu- res many types of industrial machinery, and plastics are being formed into a steadily growing number of gears, cams, washers and similar components for this equipment.

The Chicago area's plastics industry has a record of outstanding accomplishment in research, production, and facilities. The Anesite Company, for example, developed a plastic liner for pipes that is solving a problem that plagued public utility companies. Galvanic currents in the soil slowly eat away the metal in water, sewer and gas pipes, until finally a leak occurs. Repairing such a leak is a tough, expensive and messy job, usually involving and digging up a yard to get at the pipe. Peoples Gas Light and Coke Company now inserts a plastic liner in the service pipe connecting the customer to the gas main. The company reports that the cost of materials used in repairs has been cut 25 per cent and labor costs 10 per cent. Furthermore, the repair job lasts far longer than it used to.

U. S. Steel's National Tube Division, The Crane Company, and Sandee Manufacturing Company, also make plastic pipe for a variety of industrial applications. A major reason for the growth of this end of the business is illustrated by a recent Crane installation at the Globe-Union Company, a Milwaukee manufacturer of storage batteries, spark plugs, and electronic products. Formerly, Globe-Union used lead pipes to feed hydrochloric acid to its zinc-plating tanks. The pipes would cor-



Plastic is molded into everything from tea cups to tools at Chicago Molded Products



Plastic drawers, a recent development of Richardson Company rode and had to be replaced approximately once a month. Crane replaced the lead pipe with polyethylene plastic pipe, and after many months the plastic pipe is still in good shape. A similar switch was made in a set of pipes carrying sulphuric acid to a battery filling station. This plastic pipe has been in use more than nine months without deteriorating. Lead pipe, in the same service, lasted only about a month.

Globe-Union officials report that by using polyethylene pipe instead of the lead variety, they cut costs drastically. Formerly, two pipefitters, plus cumbersome cutting and threading equipment, were required to replace each corroded pipe section. Polyethylene pipe can be put up by one workman, and the only tools he needs are a knife and a screwdriver.

With a performance record such as this, it is not at all surprising that plastic pipe has been one of the fastest growing products in the whole plastics industry. In 1948, $500,000 worth was sold at the consumer level, and in 1955 sales soared to $45 million. It is estimated by 1960 volume will be up another 100 per cent.

Better resins and better molding methods are making it possible to turn out plastic parts of increasingly complex design. A valve body for washing machines recently developed by the Chicago Molded Products Corporation vaguely resembles a piece of Swiss cheese that has been attacked by an army of mice. The part is studded with holes large and small, and has at least a dozen plane surfaces. According to CMPC officials, the cost of this part in metal would be at least two to three times higher than for the plastic unit.

Chicago Molded also manufactures such assorted plastic items as dinnerware, front panels for air conditioner cabinets, automatic ice cube molds (unique in that a thermoplastic and a powdered metal part are both molded into a panel made of phenolic resin — a thermosetting plastic), and cabinets for a number of electronic products and home appliances.

The Santay Corporation, said to be the largest injection molder in the business, also has introduced plastics to a number of new applications. During the last two years, for example, the firm manufactured the first plastic golf club head, and the fi plastic radio cabinet guaranteed be unbreakable. Another major complishment was the developme of a number of components for was ing machine timer switches. A problem here was the close toleran involved — plus or minus two th sandths of an inch. Santay not o was able to make injection-mold plastics meet these tolerances, also was able to turn them out appreciably less cost than the p dered metal items they replaced. S tay engineers have produced simi benefits for manufacturers of oxy metering devices, electronic test equipment, phonographs, and ot devices. Many of these products volve the bonding of plastics metal, a field in which the comp has specialized for years.

The specialty of G. Felsenthal Sons is luminous plastic dials. H black-lighted and edge-lighted craft instrument panels are desig and produced. Felsenthal also ma plastic lenses, dial faces, and kn for the automobile industry. In a tion, the firm does a big business the radio-TV and home appli industries.

The Molded Products divisio Admiral Corporation, in subur West Chicago, was an early de oper of large size television radio phonograph cabinets. In 1946 division (then an independent c pany), produced a 7½ pound ra phonograph cabinet, far heavier bigger than anything previouly tempted with plastic. In 1948, and 1950, television cabinets of ord size and weight were develo

Injection Molding

General American Transporta Company's plant is equipped injection molding machines t range from the smallest units ently used by the industry, with ounce capacity, to the largest, ounce capacity, and include mo the sizes in between. General A ican also has one of the larges inforced plastics presses ever It delivers a pressure of 1,000 and the press bed is large enoug park an automobile. With equipment the company prod such things as aircraft battery three times as large as those use automobiles, and refrigerator liners covering ten square feet.

Although the plastics industry

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YOUR CADILLAC DEALER

ture growth will depend in a large degree on the new applications developed by engineers, it will depend just as much on the development of new resins. Manufacturers of plastics raw materials in the Chicago area have more than held up their end of the research job.

One example of recent accomplishment is "Cycolac." This is a new thermoplastic resin developed by the Marbon Chemical division of Borg-Warner, and introduced in 1954, which does much to overcome the limitations of previous thermoplastics.

The basic problem with both thermoplastic and thermosetting materials (all plastics are either one or the other) is that even the best are compromises. Most thermoplastics, for example, have comparatively high tensile strength and can be manufactured in a wide range of colors at relatively low cost; however, at high temperatures they warp and bend. Thermosetting materials have good heat-distortion qualities (i.e., they don't bend at high temperatures), but may lack tensile strength, may be expensive to manufacture, or may not take as many colors. These are only a few of the many qualities involved of course; the important point is that every plastic is deficient, in varying degrees, on at least some counts.

Cycolac isn't perfect either, but it has a better balance of properties than similar-type resins. It rates higher than most thermoplastics in heat resistance and impact strength, and is equal to the competition, or only slightly below it, in the other categories. Besides radio cabinets, the new material is being used in such widely assorted products as golf club heads, vacuum cleaner wheels, television coil forms, magnetic tape reels, and lawn sprinkler heads.

One of the most promising plastic materials is reinforced polyester (actually, there are about 100 different polyester compounds). The Chicago plant of the Glidden Company is a major supplier. The promise of this material is indicated by the present and projected uses of Glidden's production. Present applications include house trailer shells, outboard motor boat hulls, form-fitting chairs, advertising signs, and awnings. Even
more significant, however, Glidde
is presently cooperating with r
searchers at the University of Mich
gan who are studying the use of r
inforced polyester as a structur
material for buildings. The firn
polyesters also have been fabricat
experimentally into refrigerat
cabinets which, potentially, are cap
ble of replacing the enameled met
boxes now in use.

Protective Compounds

Glidden is making a variety
protective compounds which inc
porate polyester resins and can
applied to concrete, wood, or met
surfaces. One sample of how effecti
they are: at a Hawaiian pineapp
plant one of these protective co
ings, known as "Glid-Iron," was a
plied to the concrete floor arou
a pineapple peeling-coring machi
Four months later the protected ar
was still in perfect shape. Canne
officials reported that Glid-Iron w
the only coating ever applied arou
the machine which did not start
teriorating within a month.

Chicago's other major plastics r
materials suppliers are the Cata
Corporation and Sherwin-Willia
Company. Catalin products inclu
a wide variety of urea, pheno
cresylic, resorcinal, and styre
liquid and powder resins, used b
by plastics processors and by
metal working industry for foun
molding operations.

Sherwin-Williams is a leadi
manufacturer of the color pigme
that go into many plastics. Recen
the company has produced a nu
ber of new colors, with such nan
as "benzidene yellow," "polaris re
"pyrolux maroon," and "phtha
cyanine blue." A $1 million pl
for manufacturing the last-nam
pigment has been built in Rosela
just outside of Chicago. All of th
new materials have a number
advantages over the dyes that w
previously used exclusively to co
plastics. The most important
provements are increased brightn
and resistance to fading.

Brighter, more permanent p
ments are bound to expand a nu
ber of plastic markets — notably
the home appliance field, where
traditional color, white, is losi
ground.

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Home of Future

(Continued from page 112)

prospect in the next decade. Houses will be better designed for the extremes of the Chicago climate, and will have new and improved types of insulation.

Combination air conditioning-radiant heat units, now under development, will be universally adopted. Rapid progress in the development of atomic energy for power leads some architects to predict that within two decades homes may be heated either by individual atom-fueled furnaces or by electricity from a central atomic generating unit. "In 15-20 years, one-half of our homes will be heated by electricity," Mr. Keck predicts. "Atomic energy will give us unlimited power at less than a cent per kilowatt hour, which will make home heating by electricity possible."

Built-in appliances feature modern Western kitchen, designed by Hotpoint, includin both conventional and electronic cooking

Electronic devices, and developments already possible in the laboratory will, by 1970, make 1957 home equipment antiquated, appliance and television manufacturers predict. In her kitchen of tomorrow, Mrs. Chicago may cook with microwaves, wash dishes and clothes with supersonic waves. Kitchens of the new home of 1970 will be the family room, with plenty of space for informal dining and leisure living. appliances needed for cooking, fo storage, dish washing and clot washing will come in one modu unit, installed by the builder.

The success of current research

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As we near our 75th year, the past reflects great progress for Harrington & King. We have come a long way since starting in the manufacture of perforated screens for grain cleaning and grading in 1883.

Our perforating operations grew from that point to serve many new industries such as automotive, household appliances, architectural and building products, processing industries and many more. The past 75 years established Harrington & King as a world leader in the perforating industry.

WHAT ABOUT THE FUTURE?

Harrington & King's future lies not only in perforating to customer order, but also in helping the customer develop new ideas and uses for perforated materials in their end products. Toward this end, Harrington & King is building many new dies to further expand the line of functional and decorative perforated patterns.

We can now offer a design and styling service to incorporate the use of perforated materials in a customer's end product. Our production methods are being improved upon continuously, thus enabling the perforating of many materials at speeds which were, heretofore, considered impractical. We are now perforating materials and maintaining tolerances that, a few years ago, were considered impossible. We have opened new markets through research to increase the use of Harrington & King perforated materials. People in these new markets are seeing what we have to offer and are buying.

Our sales engineers will be pleased to work with you on your perforating requirements at no obligation.

We will forward our General Catalog of Perforated Materials, if requested on your business letterhead.

A few of the thousands of H&K patterns are illustrated in reduced size

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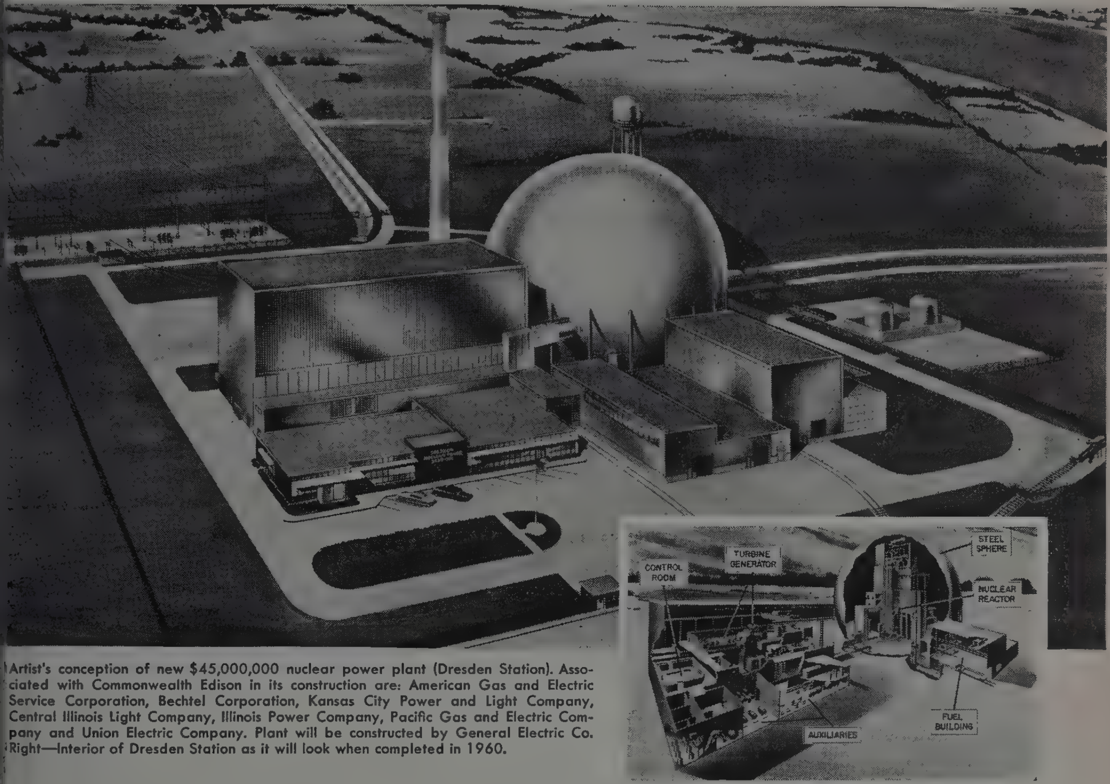

Artist's conception of new $45,000,000 nuclear power plant (Dresden Station). Associated with Commonwealth Edison in its construction are: American Gas and Electric Service Corporation, Bechtel Corporation, Kansas City Power and Light Company, Central Illinois Light Company, Illinois Power Company, Pacific Gas and Electric Company and Union Electric Company. Plant will be constructed by General Electric Co. Right—Interior of Dresden Station as it will look when completed in 1960.

New 180,000-kilowatt nuclear power plant...the largest yet authorized

Chicagoland is a dynamic area. There's proof in this book. If you need more... just look around.

Look on the banks of the Illinois River, 50 miles southwest of Chicago. Here one of the most dynamic projects in the Chicago area is under way.

Nuclear power is coming to Chicago and Northern Illinois . . . in a big way.

The "Dresden Station," as the plant will be called, is scheduled to be completed and in operation in 1960 and will provide the area with 180,000 kilowatts of power. It is the largest all-nuclear plant yet authorized.

This in itself is evidence of the dynamic forces at work here. But there is more.

The Dresden Station will be built entirely with private funds. It is a co-operative effort of the Nuclear Power Group, Inc., formed by a group of companies who foresee the tremendous potential of electricity from the atom. These companies expect, through the Dresden Station, to make a significant contribution toward the production of economical nuclear power.

Commonwealth Edison—who will own and operate Dresden Station—is proud to be a member of this group and to participate in the early stages of nuclear power development.

Commonwealth Edison
AND
Public Service Company

E. Co.

irradiating perishable foods to keep them from spoiling may, by 1970, have spelled the end of the refrigerator as we know it today. If irradiated foods can be stored in drawers or compartments, the kitchen of tomorrow may need only a small refrigerated compartment for foods to be served cold, like gelatines, frozen and iced foods and beverages, and lettuce. If refrigeration is still needed, wall-type, built-in refrigerators and freezers with more effective insulation and small highly efficient compressors will be part of the appliance unit.

Built-in electronic cooking centers that use microwaves to cook foods from within at high speeds, may be on the way to replacing the electric or gas range. One Chicago appliance manufacturer, Hotpoint, Inc., already has an electronic unit on the market which cooks bacon in 90 seconds, a five pound roast in 20 minutes. With microwave cooking, only the food gets hot. Cooking utensils stay cool. Food can be cooked on dinner plates.

Hotpoint's electronic cooking center speeds cooking with microwaves

Still in the laboratory are electronic counter surfaces which use induction heating to cook food. A pan placed on the counter gets hot while the counter itself stays cold.

Supersonic dishwashers and clothes washers in which high frequency sound waves inaudible to the human ear agitate molecules of water to literally shake the debris off dishe or the dirt out of clothes, are almo ready to market. Drying will be don with electronic heating units an germicidal lamps will sterilize th dishes and clothes.

Electric incinerators that eliminat all household trash except metal glass containers, and central vacuu cleaning systems with outlets in eac room, will simplify housework i tomorrow's house. Electrostatic a filters in the year-round heating-coc ing systems will reduce dust and di to a minimum.

Glareless lighting may be possib with luminous walls and ceilings plastic coating impregnated with luminous chemical controlled fro dim to bright by turning a knob.

With electronics as much a part the house as electricity is toda closed circuit television may make possible for the housewife in th kitchen to watch the children ou side, or to see and talk to calle without opening the door.

Telephones with viewing scree to let people see each other wh they talk, or that can be answer

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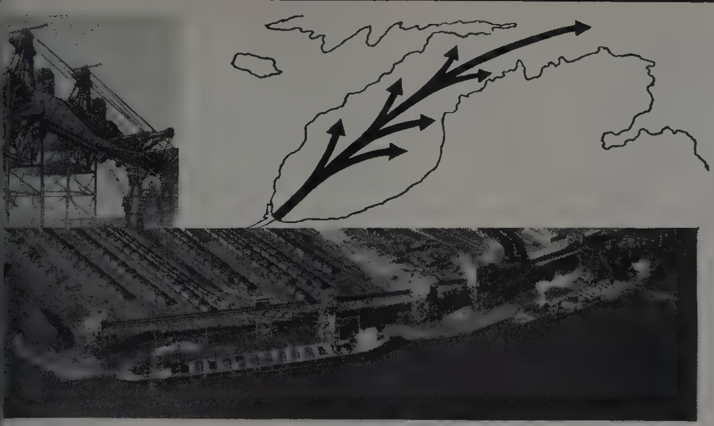

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Peabody-Southern Coal Company
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Republic Coal & Coke Company
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Sherwood-Templeton Coal Company, Inc.
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The United Electric Coal Companies
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from any part of the house without picking up an instrument, are on the way. Electronic devices will shut windows if it rains while the family is away from home.

Changes in furnishings will keep step with changes in home building and design. With more and more built-in furniture and storage space, the only furniture in tomorrow's house may be upholstered chairs and couches, mattresses and small tables.

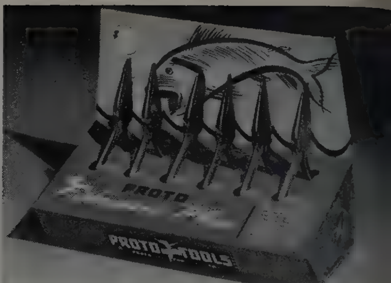
The trend in furniture will be toward more upholstered seating pieces for the living room, less wood furniture for the bedroom, is the view of Mr. Mal Flesham, president of the Chicago Furniture Manufacturers' Association.

New Materials

New materials undreamed of ten years ago will be universally adopted. Foam rubber or woven rubber webbing probably will replace springs in upholstery before 1970. Synthetic fabrics, fibre glass, and plastics will be accepted for coverings. Molded resins to which upholstery materials can be tacked have already been developed and will be greatly improved for use in light, movable chairs. In the future it may even be possible to spray upholstery on chairs and couches, so that they never need to be reupholstered.

Furniture designs will continue their trend toward contemporary styles, which now account for over 60 per cent of all furniture sold, Chicago furniture designers believe. Chairs will be lighter, more sculptured in form. Larger couches will be cleaner in styling, with excess weight eliminated. Good design will prevail in popular priced furniture as well as in high quality goods.

Widespread use of built-in storage cabinets that take the place of walls; built-in dining tables, and built-in bed headboards with storage space, may revolutionize the case goods industry's marketing patterns, furniture designer Henry P. Glass suggests. In the home of the future, case goods manufacturers may provide the home builder with the built-in furniture which today must be custom-built. Distribution of wood furniture for the home will then move from the retail store to the architect and builder, as has been the trend recently with built-in kitchen appliances.



By
Phil Hirsch

More Utility, More Sellin

"TWENTY years from now," says one packaging engineer, "the housewife will buy a product as much for its container as for its brand, and with some highly standardized items, the package may be even more important than the brand."

This statement points up a marketing development of tremendous importance — the emergence of the package as a retail product in its own right.

Originally the container's job was to protect the contents from damage prior to use. Since World War II, largely because of the self-service revolution in food, drug, department, and hardware stores, it has been gradually replacing the sales clerk. Tomorrow's packages will do a better selling job as well as a better job of protecting the product prior to use. But they will also protect the product during use, and make it easier to use as well.

You can see the beginnings of this latter trend already. One example is a new bakery box, developed by Chicago's Morris Paper Mills. It has slanted sides that prevent cake icings from sticking to the container. Other firms in this area have developed such things as an inner coating for glass containers that makes it easier to get items like catsup and pickles out; metered dispensing valves for aerosol containers; a key that opens the lid on metal cans without pulling the rip-strip out of line.

American Coating Mills, a division of Continental Can, has developed an impregnated corrugated container, for a manufacturer of sintered metal bearings, that prevents the product from tarnishing. The extension of this impregnation technique to consumer products is considered just over the horizon by many corrugated and paperboard packagers. One local bakery, Maurice Lenell Cooky Company, is already using the idea. The firm has impregnated its cartons with an anti-oxidant that helps to prevent staling on the retailer's shelf, and in the pantry after the package is opened.

Pre-measured Servings

Today the housewife can buy a box containing several individual servings of such items as tea, lemonade mix, or hot chocolate powder. Normally, each serving is wrapped in paper or aluminum foil. Laminated and coated plastics, by providing longer storage life or better protection, will soon bring the conve
ence of the pre-measured serving
other products, say officials of M
print, Inc., which is headquarte
in Milwaukee. Officials of the fi
believe that liquid detergent, so
ground coffee, fresh meat, and su
will be among the products to be
up, a number of units to a box,
plastic containers.

Both the aerosol container, m
from glass, metal, or plastic, and
polyethylene squeeze bottle, h
certain advantages that should wi
their use a great deal. Officials
Chicago's G. Barr and Compa
largest aerosol packager in the b
ness, believe that more and m
food and drug items will go i
these containers in the near futur
liquid shortenings, salad dressi
cake frosting, home antiseptics,
antibiotics, to mention a few. O
cials of Continental Can's Millsp
tic division, located on Chica
north side, are similarly optimi
about squeeze bottles. They see a

Pictures above, left to right: a multi-pack of instant coffee for easy-take-home, a de
opment of Owens-Illinois Glass Corporation; the new low-cost "skin packaging," de
oped by Chicago's Abbott Plastic Machines Corporation; an attractive counter dis
package for pliers; a Borden's take-home package designed to sell more milk
provide a toy for youngsters; testing tear resistance of paper milk container stoc
American Can Company's Barrington laboratory

ower Planned for Packages of Future

Things to come include: a completely new metal can, longer shelf life for perishables, and containers that will "sell" goods by the case

pective market in such products lue, maple syrup, honey, baby der, baby oil, and battery acid.

ckagers are working on a num- of ideas for improving the con- er's quality and sales appeal and cutting its cost. Corrugated con- ers are being coated with special tances that add to the structural gth of the box, reduce the dan- of toppling when several boxes piled vertically in a warehouse, eliminate damage caused by con- ous rubbing of the rough paper k on such products as home ap- nces and furniture.

Color on Shipping Cartons

r a long time many manufac- rs have been putting sales copy illustrations in two or more col- on shipping cartons. Prospec- customers see the carton on its to the retail outlet. Also, the box can be used inside the store as a display piece. Some manufacturers are carrying this idea one step further. They're using the shipping carton as a multi-pack retail container. In other words, they're encouraging the customer to buy the product a case at a time.

So far, shipping cartons have been used mostly to sell case-lots of beer in supermarkets. The cases are stocked right under the cans, and prices for each quantity are posted in the usual fashion.

Albert Kner, director of design for Container Corporation of America, believes the shipping carton has tremendous sales potential as a retail multi-pack container. He predicts that many other products eventually will be sold in this way. CCA, the nation's largest maker of fiber and paperboard containers, has its headquarters and eight plants here. Another plant is now under construction in suburban Dolton, Ill.

Combine Materials

Stone Container Corporation, operator of the world's largest plant devoted exclusively to the manufacture of fibreboard shipping containers on Chicago's southwest side, has developed a new shipper for chocolate syrup powder that illustrates graphically the benefits of combining corrugated with other materials. In this case the other material was a polyethylene bag designed to protect the delicate powder against moisture, heat, and similar deteriorating influences. Previously, metal containers had been used. The saving in weight and materials was enough to cut from three to eight per cent off the cost of the powder to the dairies that use it.

In plastics, a new process known

as "skin packaging" is reducing costs drastically. Chicago's Abbott Plastic Machinery Company did much of the development work. Briefly, skin packaging consists of laying a sheet of plastic over a product lying on a piece of paperboard after which a machine-created vacuum draws the plastic tightly around the item. Adhesive seals this cover to the paperboard.

The big advantage of skin packaging is that no mold costs are involved. Compared to an older, somewhat similar process called "blister packaging," the new technique is more than a third cheaper. In the few months skin packaging has been in commercial use, it has been utilized for some 60 products, ranging from shirts to ballpoint pen refills.

Glass container manufacturers are developing new coatings that improve the performance of the bottle, as well as special bottle shapes that increase sales appeal. A coating recently developed by Owens-Illinois Glass Company, which has plants in South Chicago, St. Charles, Streator, and Alton, helps to reduce breakage on the filling line. Owens-Illinois also developed the release agent mentioned earlier that aids users of pickles, catsup, and other hard-to-remove products. The firm's apothecary jar for vitamins is believed to be the first of the many novelty bottles now in use. Owens-Illinois also has adapted the multi-pack idea to a number of products — hand lotion, toothbrushes, food relish, aspirin, and shampoo, among others.

Manufacturers of wirebound boxes and crates are making them bigger and stronger. A good example is a wirebound crate recently completed by General Box Company, Des Plaines, largest firm in this branch of the packaging industry. The container, built to house a piece of radar equipment, is about 20 feet long and nine feet high. The customer, General Electric, saved some 600 pounds in shipping weight by using wirebound rather than nailed construction.

General Box also has been a leading developer of standardized wirebound pallet boxes. Recently the firm began warehousing a complete line of these boxes instead of filling each order on a custom basis. Th switch reduces the price of the palle box appreciably and puts it withi the reach of many small firms tha use only a few at a time.

Paperboard container manufactu ers are working on a number of ne ideas. Recent contributions of th Chicago folding carton industry i clude: a multi-unit carrier for potte plants (American Boxboard Con pany); a new fruitcake box which h reinforced corners and extra sidewa protection (Acme Carton Company a cosmetics container that incorp rates two different paperpoard te tures plus a gold-foil insert (Co tainer Corporation of America).

Increase Shelf Life

Combinations of paperboard an plastic or aluminum foil are produ ing big increases in shelf life. Typic is a new container for popcorn, joint effort of the Quatrum Corp ration, Economy Carton Corporatic and Designer Barry Nolan, all Chicago. It consists of a paperboa folding carton, printed in five colo which holds five saran bags, ea containing two ounces of popcor The entire packaging operation handled on an assembly line bas and includes electronic sealing. Po corn shelf life, formerly almost no existent according to the manufa turer, is now virtually unlimited.

Manufacturers of paraffinned ca tons used to hold butter, ice crea frozen desserts, and some prepar foods, are developing new coatin — polyethylene among others — ar improving the paperboard base stoc to provide better product protectio Chicago is the home of two firm Chicago Carton Company and Co tainer Corporation of America, th supply a sizeable share of these ca tons. Another Chicago package American Can Company, is a maj manufacturer of paraffinned mi cartons.

The amount of tin going into t "tin can" today is only a minute fra tion of what it was 10 years ag Millions of cans are being produc that require no tin at all. Americ Can and Continental Can, both which operate several plants and e tensive research establishments Chicago, are largely responsible f this development. Tin is a strateg material, and the major source supply, Malaya, is on the fringe

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the Communist orbit. The tinless can, by conserving available supplies, makes an important contribution to the nation's defense.

The past year has seen the large scale use of enameled steel cans for dog food. Limited quantities of these cans also have been produced for beer and frozen fruit juice concentrates. A number of synthetic coatings, such as oleoresins, phenolics, vinyls, and epoxy resins, are making the tinless can feasible for additional products. Other important research developments include the greater use of cemented (tinless) seams; widespread application of lithography to can labeling; development of a locking-type lid that can reseal the can after it has been opened the first time; no-drip, corrosion-proof nozzles for cans holding liquids and semi-liquids, especially detergents.

American Can Company recently became the first metal container manufacturer to build a plant for processing tinplate and steel plate. The new plant, located in Hammond, Ind., was completed a few months ago. Canco is now able to cut its own sheets for coils of plate supplied by the steel mill.

"I don't hesitate to predict that the metal cans of five years from now will be unrecognizable by today's standards," declares Canco's president W. C. Stolk. ". . . The tinless cans of tomorrow will be better, more economical, and many more products will be packed in them. . . . We see the possibility that entirely different production methods, such as welding and the use of plastic cements and synthetic resins, eventually may make obsolete our present can plants and production equipment. We foresee that the amount of machinery and the size of can-making factories may be reduced by half."

Chicago in Forefront

That Chicago and the surrounding area will be in the forefront of this future growth and development is indicated by the size the canmaking industry has already attained here. In 1956, 30 per cent of the industry's output of 41 billion cans was produced in the five states of Illinois, Michigan, Wisconsin, and Indiana. F. B. Newcomb, a Canco vice-president, calls Chicago "the tin capital of the world."

It's much the same story in other branches of the industry. Production of folding cartons during 1956 was valued at a little over $900 million and consumed 2.4 million tons of paperboard. Zone seven — Wisconsin, Northern Illinois, Northern Indiana, and Michigan — accounted for approximately 25 per cent o both sales volume and paperboard consumption, the largest single slice

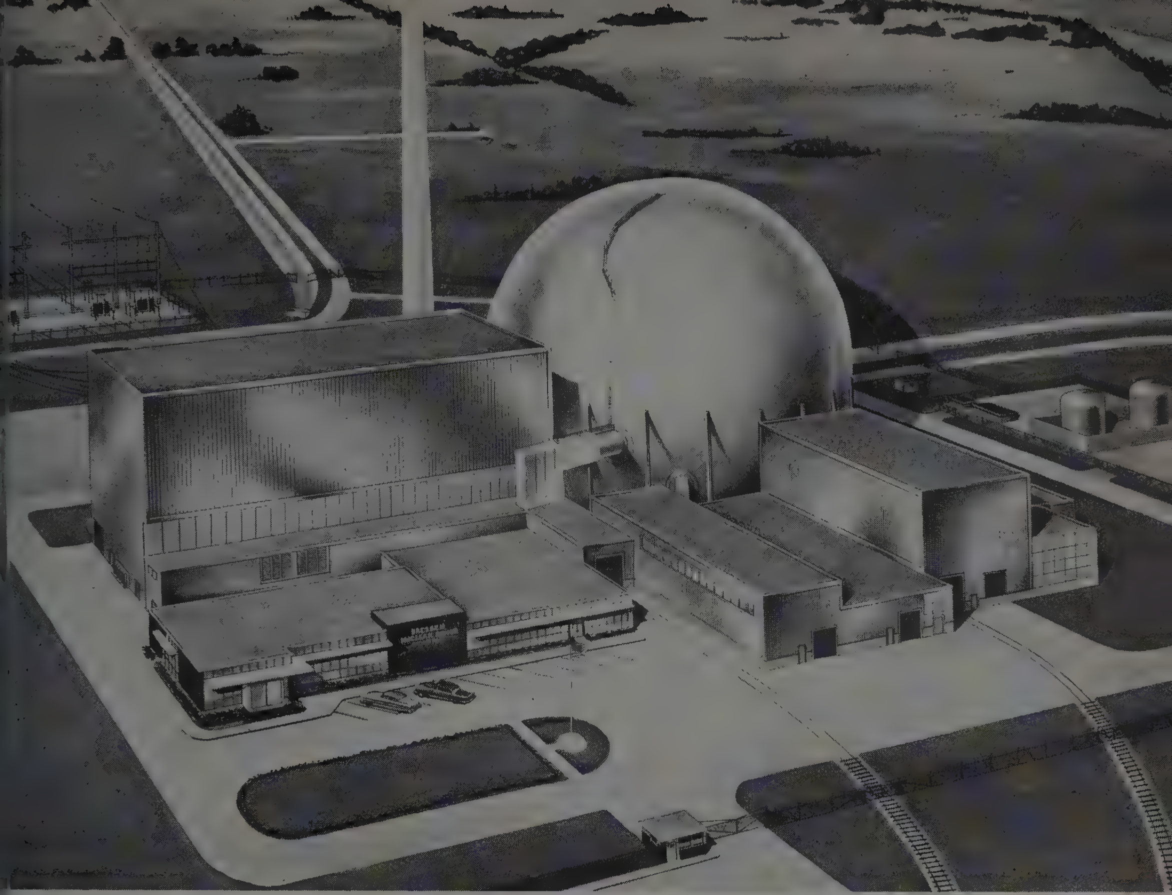
This area also contains the bigges percentage of the nation's corrugated container plants. For every six plant located throughout the rest of the nation, there are nearly four in the Midwest.

Chicago and the nearby region i one of the major plastics packaging centers. Continental's Millsplastic division is one of five polyethylene bottle manufacturers in the nation Unipack Corporation, Advance Packaging Corporation, Packaging Service Corporation, Cenpro Corporation Paket, Inc., and Chemical Enterprises, are a few of the other important packagers here.

The packager's potential market i tied closely to population and indu trial growth. The Midwest, alread the center of the industry, is boun to remain at the top, and may increase its lead as a result of thes developments.

Oscar Mayer

In 1883 Oscar Mayer & Co. started, in Chicago, to build for the future. Founded that year as a Sedgwick Street meat market, the company has grown with Chicago, steadily increasing its production and distribution facilities. Appreciative of the city that made this possible, Oscar Mayer salutes Chicago for its development and expanded horizons.



ESDEN NUCLEAR POWER STATION WILL BE BUILT BY GENERAL ELECTRIC FOR COMMONWEALTH EDISON 50 MILES SOUTHWEST OF CHICAGO

World's largest all-nuclear power station to supply Chicago with electricity by 1960

An important step in ushering in the atomic age will be noted in the Chicago area this year when construction begins on the world's largest all-nuclear power station on the Illinois Waterway.

The generating plant, to be constructed by General Electric for Commonwealth Edison, will upon completion in 1960 supply 180,000 kilowatts of electricity for the Chicago area. In addition to the significant contribution it will make to the nation's atomic power reactor technology, the plant will assume its role in Commonwealth's continuing expansion program to make plentiful, low-cost electric power always available to the area's homes, farms and industry.

The Dresden Nuclear Power Station, in itself a dramatic symbol of Chicago's dynamic growth and progress, will be one result of nearly 20 years' experience by General Electric in research, engineering and manufacturing in the field of atomic energy. Again, it is but another example of how General Electric teams with industry to help Americans everywhere live better . . . electrically. Atomic Power Equipment Department, General Electric Company, San Jose, California. 192-10

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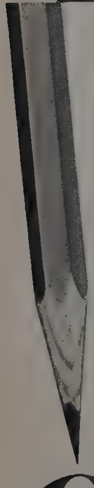

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Waterway Development

(Continued from page 27)

For construction purposes, the project is divided into two parts. The first part, which has been under construction for two years, covers improvements in Cal-Sag Channel between Sag Junction and Lake Calumet; the second part will take care of the eastern end of the project along the Grand Calumet river to Gary and the widening of the Chicago Sanitary and Ship Canal from Lockport to Sag Junction.

Congress has appropriated $12.5 million for work on phase one and the President has recommended that an additional $6 million be appropriated to carry on the work during the federal fiscal year beginning July 1, 1957.

Construction Costs

The ultimate costs of the total Cal-Sag project will depend upon construction costs when the work is started. Recent estimates place the figure at $194,435,000, of which $130,200,000 would come from the Federal government. The remainder would be non-federal expenditures for such purposes as acquisition of right-of-way and spoil disposal areas, the alteration or relocation of utilities which obstruct the project at certain points and the removal or alteration of railroad and highway bridges. These funds will come from local government agencies and private business interests.

Elimination of the Cal-Sag bottleneck will benefit the commerce, industry and agriculture of large areas in 34 states; it will make available for industrial development some 15,000 acres of land within Chicago, and provide more than 890,000 new jobs. It will provide savings in transportation costs between the Great Lakes and the Gulf of Mexico equivalent to more than twice the amount of money needed each year to maintain the project and amortize its cost. It will make possible a four-way rail-truck-lake-barge terminal interchange area in the Lake Calumet district — a facility of tremendous importance to all midwestern industry and agriculture.

These are but a few of the advantages which improvement of the Cal-Sag Channel will bring to Metropolitan Chicago as part of an inland waterway system extending from the Gulf of Mexico to Montreal. In addition, the system will make Chicago a dominant factor in the world' grain trade. Professor L. L. Waters of the transportation department o Indiana University's school of business, has predicted that the Seawa the Port of Chicago and the Cal-Sa link with the Mississippi and its tributary systems, will concentrate th great bulk of the nation's expor grain in the Lake Calumet area.

Professor Waters' conclusions wer reached as the direct result of a comprehensive survey of the Chicag Port's possibilities, undertaken fo the Board of Trade of Chicago. Thi transportation authority pointed ou that Chicago is the logical conce tration point for winter wheat fro Illinois, Colorado, Wisconsin, Iow Nebraska and Wyoming. He adde that the same low-cost transportatio factors would apply to corn and s beans.

Chicago's capacity to store grai for shipment to the rest of the worl via the all-water route of the S Lawrence Seaway now totals 85,83 000 bushels, which places it ahea of Kansas City by more than 11,80 000 bushels and makes it second on to Minneapolis, with elevator capa ity of 118,000,000 bushels.

Grain Storage

The largest single contributor Chicago's sharp rise in grain stora facilities has been the 13 milli bushel twin elevators built on La Calumet by the Chicago Region Port District. The area's total cap ity includes Cargill, Inc.'s 20 milli bushel elevator; the new 6.5 milli bushel elevator of the Glidden C and Continental Grain Co.'s ele tor, also with a capacity of 6.5 m lion bushels.

Metropolitan Chicago's steel dustry already has passed Pittsbur in total tonnage per year, will ge strong boost from the new era transportation development. Hj mar W. Johnson, Inland Steel Co pany's vice president of manuf turing, has predicted that Chica area mills will be enabled, as a res of the Seaway, Port of Chicago a

Growing with the Midwest

Why Electro-Motive is Expanding Facilities 42% at La Grange

On the outskirts of La Grange is the world's most complete locomotive manufacturing facility—Electro-Motive Division of General Motors—home of the Diesel Locomotive.

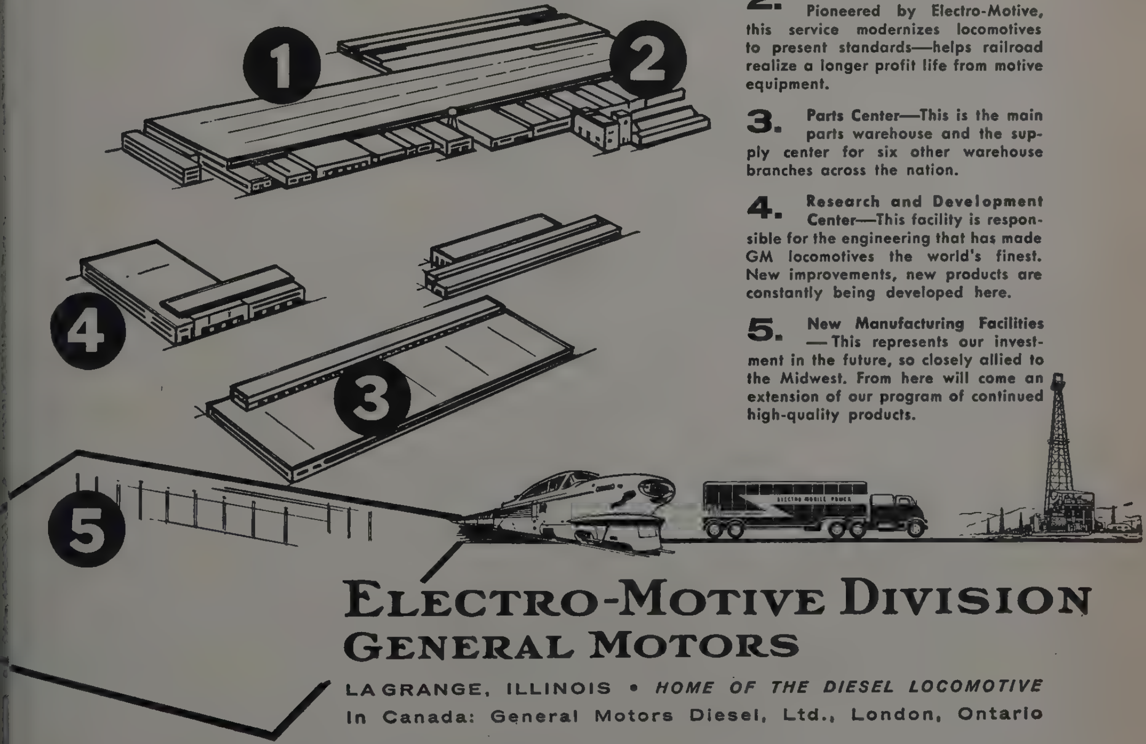
This plant combines with other facilities in Chicago to supply more than two-thirds of the Diesel locomotives that run on American railroads.

Why are these facilities now being enlarged? Two reasons: *confidence* in the growth of the railroad industry and *confidence* in the new products we have developed for the petroleum and electric utility industries.

By expanding now, Electro-Motive will be in a position to serve these industries better. We will be able to keep pace with the demands of an expanding economy—provide products at the time they are needed, satisfy increasing requirements without delay.

Thus, whether it's new locomotives, remanufacture of older locomotives, Diesel-electric power for drilling or mobile Diesel generating units, Electro-Motive is in a better position than ever to contribute to better rail transportation, faster methods for drilling oil wells, more efficient and flexible electric service.

Expansion is our way of re-asserting our confidence and faith in the great Midwest.



1. **Basic Manufacturing Area**—Over 17,000 Diesel-electric locomotives have been produced in the plants of Electro-Motive.

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3. **Parts Center**—This is the main parts warehouse and the supply center for six other warehouse branches across the nation.

4. **Research and Development Center**—This facility is responsible for the engineering that has made GM locomotives the world's finest. New improvements, new products are constantly being developed here.

5. **New Manufacturing Facilities** —This represents our investment in the future, so closely allied to the Midwest. From here will come an extension of our program of continued high-quality products.

ELECTRO-MOTIVE DIVISION
GENERAL MOTORS

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Cal-Sag improvements, to increase their capacity from the present 24,000,000 tons a year to 33,000,000 tons by 1967.

Pointing out that Chicago has been the world's No. 1 steel producer since 1953, Mr. Johnson said, "You can be sure that the difference in favor of Chicago will become much greater when these [the waterway] programs now underway are completed." Cal-Sag will contribute to this result, in Mr. Johnson's opinion, primarily by stimulating use of coal from Illinois and Indiana fields.

When the St. Lawrence Seaway has been completed Chicago will be unique among Great Lakes ports because of its strategic position astride two great inland waterway systems: the lakes themselves and the Illinois-Mississippi river basins. When the Cal-Sag channel has been widened and its restricting bridges reconstructed or eliminated, it will link these two great systems in such a manner as to bring substantially larger tonnages of many vital materials to the Port of Chicago from which they can be shipped to all parts of the world. Barges, in tow of six to eight units, will travel up th Mississippi and Illinois rivers wit Louisiana sulphur, sisal hemp fro Yucatan, bauxite ore from Sou America, coffee from Central Ame ica, and many other products the Southern Hemisphere's mine farms, plantations and factories.

The Chicago Association of Cor merce and Industry has pointed o many times that nowhere else in th world is ease of movement great than it is at Chicago; nowhere el is the process of moving goods people carried on with remotely cor parable flexibility.

Railroad Services

Metropolitan Chicago's railro services are unmatched anywhere the United States or abroad. T city and the area are served by trunk, eight belt and switching, industrial and three electric line ra roads. The combined track – 7,8 miles – exceeds the mileage of main line tracks of 38 of our 48 sta About four per cent of the natio freight car loadings and seven cent of the nation's freight car loadings occur within the Chica Switching District. Chicago railro handle on an average day ab 32,000 freight cars. There is als large volume of railroad passen traffic.

More than 500 motor freight li provide scheduled daily service tween Chicago and some 34,000 co munities throughout the 48 sta Overnight delivery by highway p lic carriers is provided to many ci within a 400 mile radius of Chica Fourth-day delivery to the W Coast is offered by many over-t highway lines. Within the city it nearly 250 truck terminals facilit the gathering and distribution highway freight. These termi are served by a steadily growing n ber of local cartage companies, p ently numbering more than 2,000

Despite the limitations of the p ent St. Lawrence route, which rest the direct Great Lakes-overseas tr to vessels of relatively shallow d and cargo capacity of about l tons, the number of sailings afford all-water service between Chic and many overseas destinations been growing steadily in rec years. Such service is now availa to the British Isles, the Scandina countries, North Africa and the

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ibbean. About 400 sailings will be available to Chicago in 1957, with regularly scheduled arrivals and departures accounting for all but a small percentage of the total.

The savings which these services make possible for Chicago area exporters and importers are substantial. To cite a few examples, agricultural implements can be shipped from Chicago to Rotterdam via the St. Lawrence route at a freight saving of 43 per cent as compared with the rail-water route via the East Coast; on tractors to Norway and Sweden, the saving is 23½ per cent; on road building machinery to the British Isles, 20 per cent.

All-Water Route

On westbound freight, the story is much the same. Wines and spirits can be imported from Rotterdam by the all-water route at a freight saving of 38 per cent. On Scotch whiskey from the British Isles the saving is 24 per cent; on toys from West Germany, 24 per cent; on canned sardines from the Scandinavian countries, 17 per cent, and on cod liver oil from the same sources, 28 per cent.

These savings, important as they are to exporters and importers in Chicago and the vast industrial and agricultural empire of which it is the center, will be a great deal larger when deep-draft ocean vessels of much greater capacity are able to negotiate the St. Lawrence Seaway fully loaded. Since ocean freight rates decrease rather sharply as vessel cargo capacity increases, the total shipping cost between the Port of Chicago and many world ports probably will be about half the total out of Atlantic Coast ports.

Although the Great Lakes overseas vessels of the future will be much larger, the number of men required to operate them will remain about the same. Crew costs, including wages and subsistence, on the foreign flag vessels now calling at Chicago run between $8,000 and $8,500 per month. On a 30-day voyage, when payload jumps from 1,500 tons to 8,500 tons, wage and subsistence costs probably will decrease from the present $5 per ton of cargo to about $1.

Chicago's competitive advantages over other Great Lakes ports can hardly be overstated. If anything, present estimates of the broad economic gains which will result from the new Seaway, the widened Cal- channel and Chicago's strategica located deep water port in Lake C umet are apt to prove conservat as the next decade unfolds.

The Port of Chicago is closer the center of the nation's populat than any other deep water port the United States. It is also the o port on the Great Lakes with a dir water connection between the Lawrence Seaway and the natio most important inland waterway the widespread Illinois-Mississip river system.

The Port of Chicago stands at crossroads of the nation's vast r work of railroads, airlines and mo carriers. It will serve an area wh offers foreign producers one of world's largest markets. And beca it is in the heart of the most prod tive areas in the United States, Port will give Midwest shipper better opportunity to compete world markets.

Chicago's port will have the la est and most efficient terminal fa ties for loading, unloading, w housing and transshipping both b and general cargo from ship to r barge or motor carrier.

Rate Advantage

For a large segment of the Un States there is a substantial adv tage in railroad freight rates to Port of Chicago as compared w rates to such ports as New Orle New York and San Francisco. this area of advantage in Chica favor are 37 per cent of the nati wholesale establishments, 38 per of its retail stores, 39 per cent o manufacturing facilities and 40 cent of the dollar total of f products.

To put it another way, Chicag the most economical foreign t outlet for a portion of the cou equal in size to the combined a of the British Isles, France, Holl Belgium, Sweden, Norway, Swi land and East and West Germar

All in all, it seems reasonably to predict that within the next q ter century Chicago will become world's No. 1 city. It is equally to predict that the St. Lawrence way, the Calumet-Sag Channel the Port of Chicago in Lake Cal will account for major strides to that destiny in the next ten to fi years.

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Push-button-operated conveyor belts like this one made by Link-Belt Company handle 1,600 tons of coal an hour for Commonwealth Edison

Giant equipment like the above at Kropp Forge Company helps to maintain the area's leadership in the machinery making industry

achinery Industry Tooled Up For Future

Increase in automated production lines expected to boost machinery business

IGHTEEN per cent of the new
production equipment sold to
the U. S. metalworking indus-
n 1956 was automated, reports
American Society of Tool Engi-
. This year, the figure will rise
estimated 22 per cent. Signifi-
y, the biggest single group of
hasers is composed of firms with
een 250 and 1,000 employes.
early, machine-power will be
far more work in the typical
ry 20 years from now. The six-
ty Chicago metropolitan area
be responsible for much of this
ovement. For here is concen-
d the largest, most diverse in-
ial machinery manufacturing
plex on earth.
icago manufactures more
ing machines, more diesel en-
more pumps, conveyor equip-
, food machinery, ball and roll-
arings, valves and fittings, gears,
and dies, than any other city
e nation. Its total output of
lectrical industrial machinery
valued in the latest census re-
(1954) at well over $1 billion, more than $100 million above Detroit, the second-ranking city. The Chicago area's output of electrical machinery and equipment was valued at $862 million.

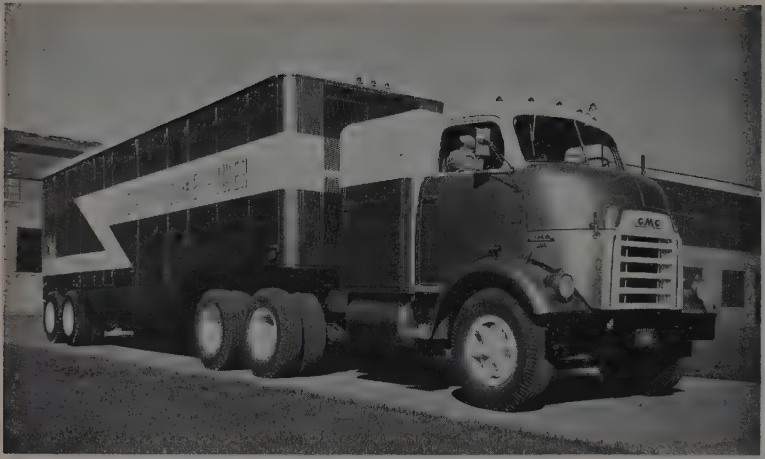
Changes Anticipated

In materials handling, already a highly mechanized operation, even more drastic changes are anticipated. According to B. I. Ulinski, director of design and development for Chicago's Automatic Transportation Company, largest manufacturers of electric fork-lift trucks, the use of atomic power is a definite possibility, although it is several years away. Mr. Ulinski believes that forks and numerous other attachments now in use ultimately may be replaced by a device shaped like a giant human hand, capable of picking up any object regardless of shape.

Manufacturers of materials handling vehicles have been researching remote controlled units for a number of years. The first to reach the market was introduced recently by the Barrett-Cravens Company, of Northbrook. Its "Radox" tractor, particularly well suited to order-picking operations in a warehouse, is controlled by a small radio transmitter attached to the operator's waist. By pushing buttons he can drive the tractor and a string of loaded freight trucks forward, turn the train right or left, and stop it at any designated point—all while standing 40 feet away.

Development of the remote controlled lift truck provides a glimmer of the automation engineers' dream – the pushbutton factory. Most experts agree that such a factory is a long way off, and some contend that complete automation will never be attained, except in a few industries. But industrial machinery researchers are doing everything they can today to come as close as possible to the goal.

The Link-Belt Company, which has its headquarters and two of its 23 plants here, is in the forefront of this development. In recent years,



Portable electric power plant made by General Motors' Electromotive Division, located in suburban McCook

A new rock driller, developed by Thor Company, which reduces drilling time on construction jobs as much as 30 per cent

Link-Belt has provided conveyors and related equipment for such widely different plants as National Biscuit Company's huge new bakery on Chicago's southwest side, Commonwealth Edison's Ridgeland generating station, an east coast stone quarry, a west coast foundry, General Electric's appliance plant in Louisville, and a West Virginia coal mine.

At the stone quarry, one man, with the aid of an intricate conveyor system, is able to control a complex series of rock-crushing operations. At Commonwealth Edison's Ridgeland station, some 6,500 tons of coal a day can be handled, including stockpiling, crushing, conveying and delivery to bunkers all by remote control from a centrally located control room.

The Chicago area also is a leader in production of metal-forming presses, power tools, paint spray systems, industrial heating equipment, food processing machinery, and other devices that convert raw or semi-processed materials into finished products. The area ranks, too, as a major supplier of much other equipment required by modern production lines — power plants, electric motors, ventilating systems, pumps, gears and shafts, to mention a few.

Thor Corporation, founded here 64 years ago, is one of the oldest in the power tool industry. Among its recently developed products are an electric-powered concrete vibrator which compacts concrete and guards against voids in the finished structure, and a mining drill that can be operated by one man.

Three of the nation's largest stamping press manufacturers — Danly Machine Specialties, Verson All-Steel Press Company, and Clearing Machinery Corporation — are located in Chicago. A total of 61 firms in this area manufacture metalworking machinery other than machine tools, e.g. presses, oxyacetylene welders, and wire-drawing machines.

Diesel Engines

Diesel engines are manufactured here for everything from farm tractors to locomotives by Buda, International Harvester, Fairbanks Morse, and the Electromotive Division of General Motors. Binks Manufacturing Company is a major producer of paint spray guns and booths, while Consolidated Engineering Enterprises turns out paint manufacturing equipment.

The Chicago area supplies special-
ized machinery to a number of o
industries. Bastian-Blessing C
pany, besides manufacturing
acetylene welding and LP-gas r
lating equipment, is the wo
largest restaurant fountain manu
turer. Other suppliers of food m
ufacturing and preparation eq
ment include Middleby-Mars
Oven Company, Creamery Pack
Manufacturing, Allbright Nell,
Globe Company, and Mojon
Bros.

About eight per cent of the
tion's output of construction
mining equipment comes from
Chicago area, which is second
to Milwaukee in this categ
Among the firms located here
Goodman Manufacturing, A
Products, Vulcan Iron Works,
gen Derrick, Barber-Greene & C
pany, and the Frank G. Hough C
pany. The Hough "Payloader
versatile tractor with a front
bucket attachment, is now in us
46 of the 48 states, plus several
eign countries. It has been empl
in highway construction and b
dustry to move everything from
to live hogs.

Leading Supplier

Chicago is a leading machi
supplier to the printing ind
(Miehle and Goss printing pre
the furniture and allied indus
(Woodworkers Tool Works);
textile industry (Union Special
chinery Co., makers of indu
sewing machines); and the pape
dustry (Chicago Box Mach
Works). It is also the manufa
ing center of the vending mac
industry. Of the 48 manufactu
members of the National Autom
Merchandising Association, 14
located in Chicago and its envi
The list includes Bally Vending
poration, Fedam Company,
nings & Company, Burt Mills
poration, and Shinner Equip
Corporation.

Industry spokesmen believe
the vending machine will take
a predominant share of the fe
chores in many plants. Bank
vending machines, serving e
thing from soup to nuts, alread
performing this job in several
tions.

A host of new equipment dev
ments are coming from Chicag
companies supplying many diff

Chicago's Essential Link...

CHICAGO BURLINGTON & QUINCY

Burlington Route

Industrial locations . . .

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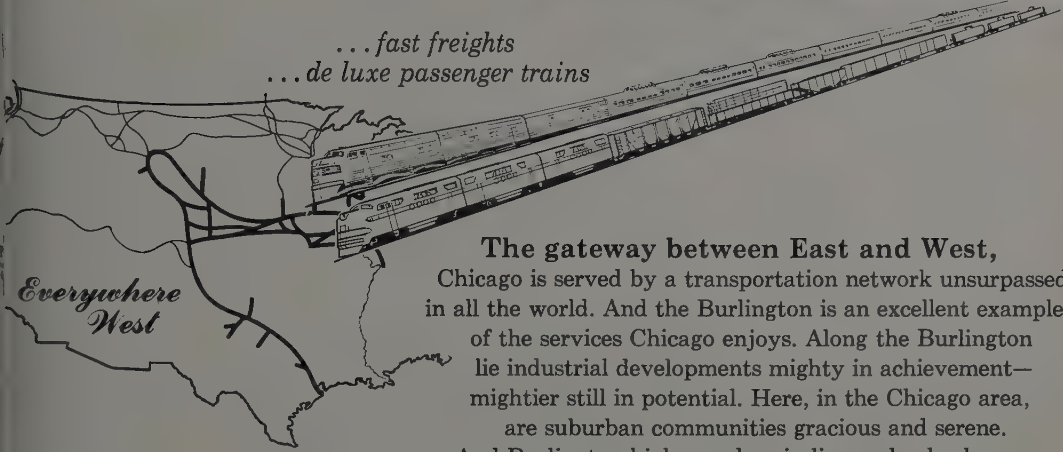
. . . fast freights
. . . de luxe passenger trains



The gateway between East and West, Chicago is served by a transportation network unsurpassed in all the world. And the Burlington is an excellent example of the services Chicago enjoys. Along the Burlington lie industrial developments mighty in achievement—mightier still in potential. Here, in the Chicago area, are suburban communities gracious and serene. And Burlington high-speed main line and suburban passenger trains, as well as fast freights, link Chicago with a prosperous empire *. . . Everywhere West!*

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industries, all of which are desig
to extend the benefits of automa
to more and more products.
typical example is the transfer
stamping press. This device perfo
up to 15 metal forming operat
in one unit, in effect replacing
separate units, and resulting in lo
labor costs, less maintenance, fa
production and reduced investm
in material-handling equipme
Chicago's Verson All-Steel P
Company pioneered their deve
ment of transfer-fed presses 18 y
ago, but the presses recently h
been improved so that they can
commodate heavier-gauge metal
more complex dies.

Paint Spraying

Several thousand automated p
spray booths have been insta
since World War II. In these bo
the whole paint spraying opera
is handled mechanically as the
moves through on a conveyor. L
ing and unloading of the conv
are the only manual operation
quired. Binks Manufacturing
pany, a pioneer in this field,
been increasing the output of
matic spray painting systems
developing special holding de
for the guns to increase the effici
of the spraying operation.

The fractional horsepower ele
motor is finding countless new
as automation gradually takes
more work on the production
Many of these motors come
Bodine Electric Company. One
installation involves an elect
scanning device that measure
thickness of a coating applied
cloth. The scanning head
back and forth above the cloth
verting the thickness measure
into an electronic signal th
recorded in figures at a remote
tion.

Another aspect of autom
finding widening application
use of automatic controls. Th
nealing ovens used in many
working plants are one exa
Another is the chemical indu
use of automatic measureme
pressure, flow, temperature,
other factors to actuate device
compensate for changes in each
able. What automation exper
attempting to do now is exten
utilization of this concept.

First, the automation eng

tackling the continuous and au- atic measurement of more vari- s. For example, there is no way resent to make a rapid, continu- automatic measurement of the eup of crude oil as it flows into finery.

econd, automation experts are ng to increase the automatic ization of data once it is ob- ed. Many machines today are ipped with devices that flash ts or sound bells when an un- rable condition occurs, such as high a temperature. An opera- must walk over and manually a switch or push a button to pensate for the condition. It ld be faster and more efficient erform the same task automati- /.

utomatic controls also may pro- important aids in management sions. The rate at which a given luction line turns out a given luct must be closely correlated inventory, buying plans, and nerous decisions relating to sales personnel.

Basic Data

/ith automatic information sys- s, say the experts, the basic data uired for management action can quickly measured, compiled, and verted to give management a inuing, up-to-the-minute picture every variable. More decisions be based on facts, fewer on sswork.

anellit, Inc., located in suburban kie, is a leading manufacturer of omatic control equipment and omatic information systems.

ecently president Albert Sperry mented: "From the long-range nt of view, we can expect some- g like this to happen. . . . At , the emphasis will be on the acement of men with machines, in a few years the more obvious sensational opportunities (for her mechanization) will begin to ppear. Eventually, commerce industry will begin to think of omation . . . as a tool for better rol of production."

/hen that day arrives, according perry and other automation ex- s, industry will have a valuable tool capable of improving pro- tion efficiency and cutting costs tically.

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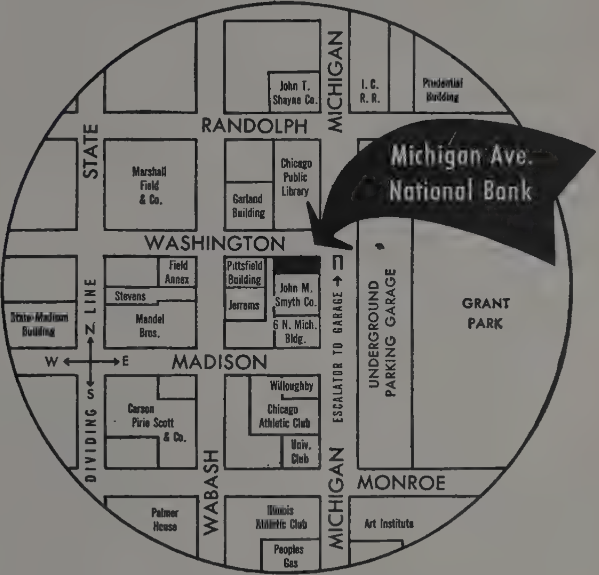

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Churches

(Continued from page 45)

ant denominations, has outlined a half-billion dollar expansion program. Construction of new church buildings and rehabilitation and enlarging of existing ones will require some $300 million through 1975, the Federation estimates. In addition the Federation's bureau of research and planning is engaged in a program of research and analysis on future community service activities of the churches. This research may run to an estimated $280,000, and the balance of almost $200 million would be expended in the recommended community services.

According to Dr. Richard Myers, executive director of the Federation's research bureau, the churches are beginning to think in terms of preventive social work, perhaps through the hiring of a single case worker to serve several congregations. It is estimated that most pastors now spend at least a fourth of their time in counselling, and expected population and membership growth would be likely to increase this demand.

Another area being explored is the use of professional group workers to conduct youth activities. A large proportion of church membership growth has come from young people, according to Dr. Myers, and the churches feel the obligation to provide them with more meaningful projects and activities.

The Roman Catholic archdiocese, which has a Catholic population of 1.9 million within its 1,400 square miles, is purchasing property and studying plans for new parishes and new church buildings in Chicago and the suburbs. The archdiocese, largest in the northern hemisphere, will soon exceed two million members in the opinion of pastors in its 400 parishes.

Jewish congregations are meeting their membership increases by building new synagogs of the Reform, Conservative and Orthodox groups.

Ecclesiastical officials believe that over $1 billion will be spent for church facilities in the Chicago area in the next 20 years.

The National Joint Confere
on Church Architecture has poin
out that babies and motor cars
primarily responsible for the chu
building boom, and accommo
tions for both can be found in n
church blueprints. Special roo
where infants and children un
two years of age can be cared f
are provided by the new churc
being erected in Chicago.

Today's church builders are ere
ing modern houses of worship
contemporary architectural styl
equipped with year-round air-c
ditioning and heating faciliti
They are being built with m
rooms for social meetings, librar
kitchens, and auditoriums, with
view toward expanding activities

An excellent example of this tre
is St. Gertrude's Roman Cath
Church in Franklin Park. It is
expression of a new concept
Catholic church architecture,
cording to architect Edo J. Belli.

Ground has been broken for
other modern church, St. Tho
More, 2606 W. 82nd street, to
over $1 million. The main au
torium will be circular, seating 1,
on the main floor and 1,000 in

How Higgins and Frank Can Help Your Business

CUSTOMER RELATIONS — To remember your customers on birthdays, special occasions, and gifts for visiting V.I.P.s.

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SALES INCENTIVES — Prizes to give your salespeople that extra push to attain a goal.

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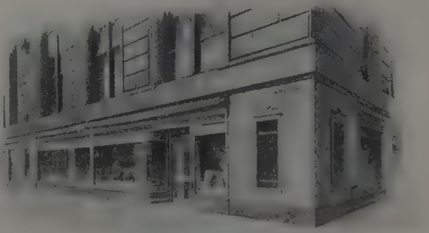

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serving home and industry in great and growing Chicago

Chicago's population has reached a record high of nearly four million—and is increasing steadily.

Industry, too, following a remarkable postwar impetus, is working and planning as never before in our city's history.

As a partner in Chicago's progress since 1850, Peoples Gas is contributing to this growth in two important ways: *planning* . . . to anticipate the future demands for increased Gas supplies; *working* . . . to keep pace with the present need for more Gas to serve Chicago's busy homemakers and its great and growing industry.

1850–1957

THE
PEOPLES GAS
LIGHT AND COKE COMPANY

basement. The architects are Barry and Kay.

In the Chicago Loop, at 16 N. Clark street, is being erected the modern Chicago Loop Synagog, to cost $750,000, with a seating capacity for 2,000. A public address system will carry services throughout the entire building, which will contain a library, study halls and rooms for meditation. Many of the rooms will be named after prominent families of the congregation. The building will be completed in 1958.

The Jewish Temple comprises the Loop's "Worship Square," within which are St. Peter's Roman Catholic Church, 110 W. Madison street, and the Chicago Temple, or First Methodist Church of Chicago, at Clark and Washington streets.

Another new church, St. Mary's, soon will be started on the southwest corner of Wabash avenue and Van Buren street by the Paulist Fathers, who are in charge of Old St. Mary's at Wabash avenue and Ninth street. The project, of contemporary design, will cost some $2 million. Belli and Belli are architects.

Rising on the south side, on corner of South Shore drive a Coles avenue, is the Beth Am P ple's Synagog, which will cost o $800,000 when completed in Ju Its architect is Percival Goodman Columbia University.

A new $1 million church build will replace the St. Paul Evangeli and Reformed Church, Fuller and Orchard streets, which was ra by fire in 1955. It will be built Indiana limestone and Williamsb brick in modified Gothic style.

Nearing completion at 68th st and Washtenaw avenue, on southwest side, is a new $1 mill church reminiscent of those of L uania. The architect, John Mulok who came to Chicago from L uania, explains that his design rep sents a new American-Lithuan church art, and is a combination both trends of architecture.

Another church of contempor design will be St. William's Ron Catholic Church, Wrightwood Sayre avenues, to be started spring and to take over a year build. To cost $1.5 million, church will have a disc-shaped a tion for the baptistry, and the st ture's seating capacity will be 1,

Historic Churches

Widely acclaimed as the "City Churches," Chicago also has m historic churches with large active congregations. Among th are Our Redeemer Luther Church, 64th street and Harv avenue, and the beautiful Go edifice of the Fourth Presbyte Church, Michigan avenue and D ware place.

Another beautiful church is of the First Presbyterian Church Chicago at 6400 Kimbark avenue traces its history to the carpe shop of Fort Dearborn, where congregation was organized June 1833. It is the oldest Protestant gregation in Chicago, antedating incorporation of the city itself.

Chicago has grown to giga stature since Father Marq planted the first Christian sy in 1674 at what is now Damen nue and the drainage canal. A with its factories and skyscrape has built houses of worship. T its many religions are united in task of providing for the worship yet to come.

WILLETT'S
"New Horizons"

Major investments in Chicago's future . . . to provide even better truck leasing and transportation service to industry and commerce:

$750,000 SOUTH SIDE TRUCK CENTER

Five acres of property, a 10,000-foot office building and an 18,000-foot garage—at 100 West 91st Street. This facility is designed to tap the huge influx of commerce developing at Calumet Harbor, through the St. Lawrence Seaway.

$500,000 CENTER IN HEART OF CITY

The truck rental, truck leasing, charter bus, and contract hauling complex of Willett, at Harrison Street and Desplaines, will be completely rebuilt during 1957. This includes a $200,000 building, truck service shops, and truck rental facilities.

TRUCK RENTAL · WILLETT Established 18?? · TRUCK LEASING
CHARTER BUSES · "AIR-CARGO"
CONTRACT HAULING

Headquarters: 700 South Desplaines Street, Chicago
MOnroe 6-1492

BUILDING WITH THE NEW CHICAGO

Nation's most modern newspaper plant nears completion; to be first structure in projected Fort Dearborn Civic Center

This Fall, The Chicago Sun-Times will move into its new $15,000,000 plant.

This will highlight a series of notable editorial, advertising and circulation achievements by Chicago's youngest, most vigorous newspaper.

Now America's fifth-largest morning newspaper in circulation, in 1956 The Sun-Times also became Chicago's No. 2 newspaper in retail and classified advertising.

Still greater achievements lie ahead. From its new presses will pour still more copies of bigger issues, brightened with full color, to keep pace with Chicago's growth and with fast-growing reader and advertiser demand for Chicago's modern family newspaper.

Growing
th Chicago . . .
new Sun-Times
ding now under
construction

CHICAGO
SUN-TIMES
THE NEWSPAPER OF THE NEW CHICAGO

Panoramic view of Armour and Company chemical plant at McCook, Illinois

Research on tissue cultures at Abbott Laboratories requires strictly sterile lab conditions for screening anti-viral compounds

By Frank C. Byrnes

TWICE the size of today's petroleum industry, one and a half times the size of today's auto industry. That's how big the chemical industry will be in 1967. Yet, that is only the halfway mark of a dynamic expansion to be attained by 1975.

Big factors will be plastics (eightfold increase) and synthetic fibers (two to threefold), but the growth will be all across the board. In fact, a good share of it will be in chemicals that today are only laboratory curiosities or still remain to be discovered.

Chicagoland will get a more than average slice of this plump pie. The westward and southward movement of the industry has been accelerating during the past decade. The chemical industry of New York-New Jersey is more than double that of Chicagoland, which is in second place. But in the past seven years the only northeastern area to show an increase in rate of growth is Connecticut whereas Chicagoland gained three times as many plants and 50 per cent more in values than any other metropolitan area. Chicagoland will continue to gain impressively in stature. Some 100 new plants in the million dollar bracket, and 300-500 medium and small plants, will be built here.

There are a number of factors behind this trend. Vertical integration of chemical companies is increasing. Many now own mines or other raw material sources, and process all the way through to finished products. One local detergent manufacturer wishfully said: 'Some day perhaps we'll have our own oil well for raw materials." And when companies get into consumer goods, like International Minerals and Chemical Corporation with Accent, Monsanto with All, Dow with Saran Wrap, there's a need to be close to marketing centers.

Then there is the strong current
of diversification. Many compan
in allied or even unrelated industr
are getting into the manufacture
chemicals. Many salesmen are m
ing a living today from chemic
whose names they couldn't p
nounce or spell five years ago. T
trend, too, seems destined to c
tinue.

Freight and distribution costs h
become increasingly important.
more economical to manufacture
the hub of a market and ship in
directions than it is to be located
to one side, shipping in only hal
many directions. No location can
gin to challenge Chicago as the h
of the world's best water-rail-hi
way-air transportation system. A
further improvement will come
the Seaway, Cal-Sag Developm
and Calumet Harbor are dovetai
into the network.

Sell To Each Other

The chemical industry has alw
been its own best customer. C
panies engaged in a merry ro
robin of selling to each other. C
pany A made a chemical and s
it to Company B and Company
Company B processed it and m
one new chemical, Company C m
still a different one. Company
turned right around and sold som
its product back to Company A,
also sold to Company D. Compan
sold to Company D and Compan
and still different products w
made. Perhaps some of these w
sold to Company A, or B or C, o
still others. And so it went. Con
ing? Yes, but it's what brought i
being the overwhelming number

The author is midwest editor, "Chemical Engineering" and "Chemical Week."

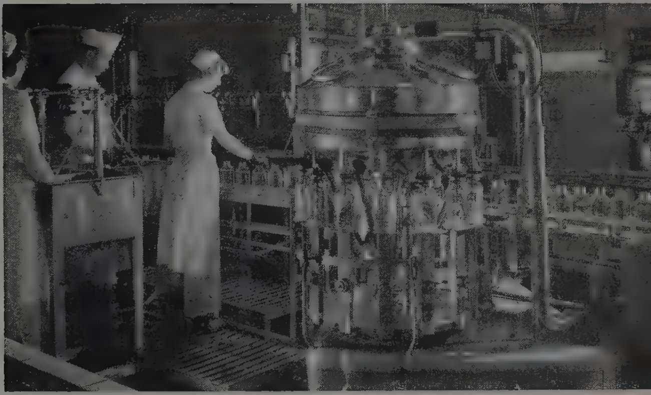
n Chemicals Too: More Growth for City

micals available today and fos-
d the growth of the industry.
hese chemicals are now the life-
od of industry. The tail is wag-
; the dog, but the tail is also
ing longer and bushier, and Chi-
land can look forward to an
eased emphasis on chemicals. If
l Sandburg were to write his fa-
us poem today, he'd surely add a
olet about chemicals.

Big Demand

Vhat then, are some of the trends
other industries, all customers of
chemical industry, that will re-
re new chemical plants? Demand
be big for plastics and metals
can be molded or poured con-
uously to produce finished parts
hout machining. Plastics are cov-
l in a separate article but it
uld be noted in passing that they
stitute 25 to 30 per cent of the
l sales of three of the six largest
mical companies in the country
ay.

ersonal needs offer a juicy mar-
It's predicted that every person
have twice as many garments as
y have today. Synthetic fibers will
the crest of this wave, and while
doubtful that any mills will be



Filling containers in air conditioned, dust-free room at Baxter Laboratories

Ammonia plant—feed preparation section in foreground

naldehyde Plant, Spencer Chemical Company, Calumet City, Illinois

located here, certain raw materials could be profitably made here.

Automobiles will soon require 40 million pounds of synthetic fiber upholstery material, 180 million pounds of "plastic" foams, 56 million gallons of paint, 20 million pounds of fuel additives, 40 million pounds of oil additives and 28 million gallons of anti-freeze. Some of these are now locally produced, but much greater production is possible. Gas turbine engines will probably appear on trucks by 1959, certainly on passenger cars by 1967. And the chemical industry will be instrumental in supplying the proper fuels.

A lot of the "possibles" hinge entirely on the attitude of local petroleum refiners toward increasing petro-chemical output. Although Chicagoland is near the top in the nation as a refining center, it is far down the list as a producer of petrochemicals. On taking a closer look at the nearby markets for these products, petroleum refiners may shortly decide that the lag is too great, and a number of petrochemical plants may be erected. This, in turn, would foster even more rapid growth of other segments of the chemical industry.

Not too long ago organic chemicals were obtained mainly (75 per cent) from coke ovens. By 1967, 75 per cent of them will come from oil and gas. One local plastics raw materials company says there could be a tremendous growth of this industry, depending on the thinking of petroleum companies toward petrochemicals. Jay Forrester, President of Amoco Chemicals Corporation, expects production of benzene and other aromatics from refineries will increase about 50 per cent. Coke ovens will continue to add some. This will attract producers of styrene, phenol, nitrobenzene, chlorobenzene and numerous other derivatives.

Paints have enjoyed three waves of expansion coincident with housing and automobile booms during the last decade. They have leveled off again to wait for some unseen factor. One paint company can see only ten per cent increase by 1967. Another suggests a novel concept that could cause a tremendous surge in sales. The market potential across the
country is $3 billion, but sales p
motion sadly lags industry techn
ogy. It's suggested that installme
buying might be an answer to t
riddle that a man will buy a $3,0
automobile with no hesitation b
cautiously defers a $400 paint job
his house.

Soap has been steadily losing
battle against synthetic detergen
It's expected that detergents w
have 30 per cent of the toilet b
market by 1960, 65 to 70 per c
later on. Likewise, heavy duty liqu
detergents, built-in measuring
vices on washing machines, and t
like, will further boost detergen
Many of these are produced h
now, but another five or ten pla
will be needed.

Geriatric Medicinals

As population increases there'll
proportionately more older a
younger people. Both will need m
medicinals, and demand for geria
medicinals will be especially hi
The drug industry is fast-movi
About 90 per cent of today's
scriptions call for drugs that w
nonexistent ten years ago and
situation is expected to contin
There'll be better medical serv
progress in treating cardiovascu
diseases, preventive drugs for can
and all major infectious diseases
be controlled. Even more hearten
is the fact that as production goes
prices will go down. Vitamin pr
have dropped 50 per cent in the
five years.

A big help in the growth of
drug industry will come from n
pharmaceutical uses. About 90
cent of all antibiotics will be u
for plant and animal feed sup
ments, control of plant diseases
food preservation. The presiden
a pharmaceutical company loc
here, wishing to remain anonym
"because gazing into the crystal
is both hazardous and intoxicati
says he feels the industry will at l
double in the next ten years.

Packaging is in its heyday and
advance even further to a 50 per
increase by 1967. It will then
sume 90 per cent of all the coun
cellophane, 80 per cent of the m
foil, including seven per cent o
aluminum produced; 55 per cen
paper and paperboard. Aerosols
hit the 600 million units mark

(Continued on page 262)

CALUMET SHIPYARD & DRY DOCK CO.

94th St. & Calumet River, Chicago 17, Ill.

Eighty-nine foot Diesel tug, 2000 HP, for James
McWilliams Blue Line, Inc., New York, New York

— Builders of —

STEEL, DIESEL OR STEAM TUGS,
RIVER TOWBOATS, SCOWS, DREDGES

Phone Equipment Makers Expand Plants

MOVE that will further enhance the Chicago area's position in the coming decades as nation's leading center for the ufacture of telephone equip- t will be completed early this mer when Automatic Electric pany occupies its new multi- ion dollar plant in suburban thlake.

hree of the largest companies in industry have their headquarters major part of their business op- ions in the Chicago area.

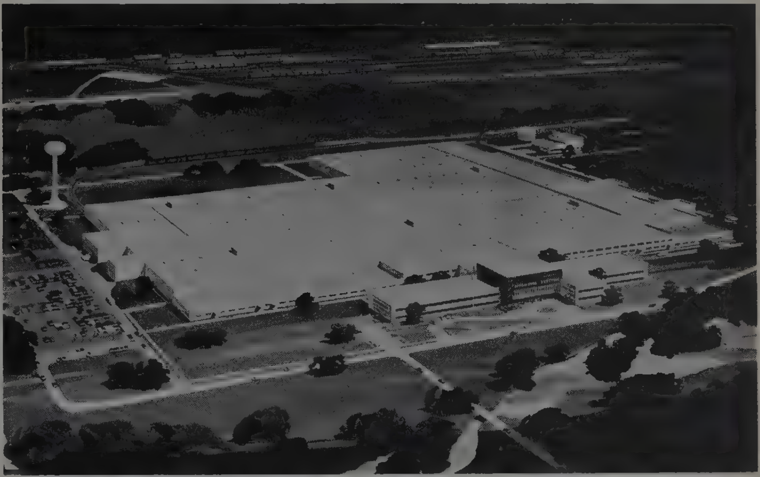
argest of the three is Western ctric Company, a subsidiary of erican Telephone and Telegraph npany. Automatic Electric, a t of the General Telephone sys- and the largest independent nufacturer of telephone equip- nt in the country, is second. Com- ting the triumverate is Kellogg tchboard and Supply Company, ich six years ago became a divi- of the International Telephone Telegraph Company.

Continued Expansion

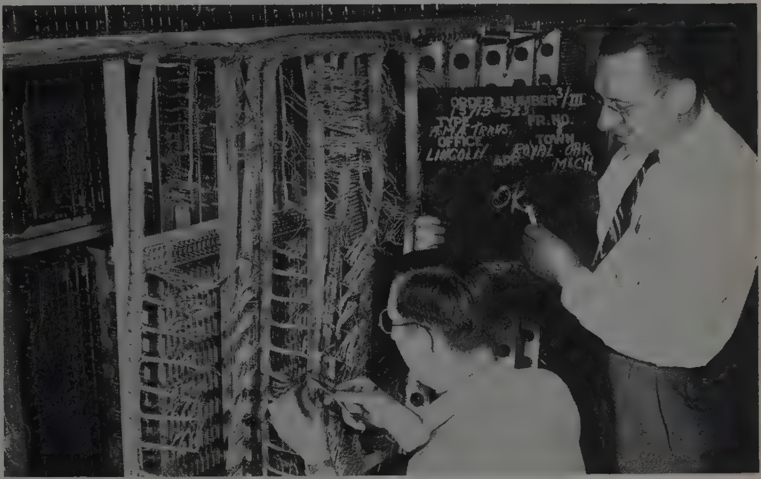
oth Automatic Electric, founded years ago, and Kellogg foresee tinued expansion in the Chicago a. Automatic Electric officials es- ate that as early as next year sales m its Chicago output will be in neighborhood of $150 million ually, or double its 1955 level.

ellogg anticipates that its total put in the next 10 years might w to $100 million annually, a 300 cent hike from the present vol- e, said W. P. Hollis, vice presi- t and director of marketing. st of the manufacturing is ex- ted to be done in the Chicago a.

Vestern Electric, one of the larg- employers in the city, expects to tinue at its present pace in satis- ng the Bell system's needs. Spokes- n said further expansion is un-



Automatic Electric Company's new plant in Northlake



Attaching "heads" on translator frame at Western Electric plant. This equipment translates information about phone calls for accounting purposes

Two Western Electric solderless wiring gun operators wiring crossbar frames which will be used in central offices of telephone companies

A laboratory technician making adjustments on a no-hands, loudspeaking telephone at Automatic Electric Company

likely in Chicago, however, because of the extensive operations here.

In 1956, the company averaged 27,000 employes (in 1948 this figure reached 39,000) with a payroll of $142,563,000. Its total production amounted to $242,000,000 at five Chicago-area plants, the oldest and largest being the Hawthorne works built in 1905. Hawthorne production includes dial telephone switchboards, relays, copper wire, sheathed cable, and other items. Other plants and their output are: 47th street, fuse panels, power and switching housing; Clearing, steel wire and strand, pole line hardware; Komar avenue, switchgear, and Teletype Corp., a subsidiary manufacturing teletypewriters.

Automatic Electric, when it moves into its new Northlake plant this summer, will have 1,520,000 square feet or more than 35 acres of floor
space. It plans to increase its e
ployment to around 10,000, as co
pared to its present 7,500. By 19
it expects to employ 12,000 perso
The company expects to have in p
duction before the end of the ye
a dial-lighted telephone which w
facilitate finding and dialing t
telephone in the dark. The co
pany also is working on a transist
ized loud speaker telephone
which all amplification elements
in the telephone instrument prop
thus eliminating the need for a se
arate amplifying unit. This also
expected to be in production
the end of the year.

An affiliate company, Electro
Secretary Industries, Inc., expects
increase its production of an el
tronic secretary, which takes a
plays back messages, and a poc
sized portable oscillator unit th
enables a user to call the electro
secretary from any telephone, a
hear the play-back.

The bulk of Automatic Electri
output, however, will continue to
in central office equipment, which
expected to become increasing
electronic. The company also fo
sees a substantial growth in 20 ye
in switches and relays to be used
industrial automation, electro
control computers, and guided m
siles. The company's output n
is limited only by plant capaci
said H. F. Lello, executive vice pr
dent.

Kellogg will continue to conc
trate on telephone switching equ
ment — both electro-mechanical a
electronic—and in instruments. T
company this year is completing
$11 million order from the Ar
Signal Corps for field telephones.
expects to increase its present 3,0
personnel.

Kellogg also will continue as
warehouse operator and distribu
of related telephone equipment su
as hardware, poles, outside cab
and pole spikes, said Hollis. T
company now has seven warehou
in various sections of the count

In the past five years, Kellogg
creased its total manufacturing fa
ities by approximately 20 to 30 p
cent in the Chicago area. Early
1957, I.T.&T. transferred its Fede
Telephone Radio Corp., Clift
N. J., to Kellogg. Hollis said K
logg is outgrowing its factory at 55
S. Cicero avenue and is looking
additional space in the Chicago ar

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Drilling for gas in the Gulf of Mexico

From the Texas Gulf Coast to Chicago, the pipeline of Te Illinois Natural Gas Pipeline Company crosses 224 rivers a streams. Above, a 3,690 foot span across the Mississippi

More Customers, New Source

Greater use by industrial and commerci

By Russell Freeburg

IN MODERNISTIC executive offices 13 floors high in the Peoples Gas building on Michigan Avenue, J. J. Hedrick, recently elected president of the Peoples Gas Light and Coke Company, stood before a wall map. He placed a pointer on an area in the Texas panhandle some 900 miles from Chicago.

"In this area," said Mr. Hedrick, as he moved the pointer in a circle covering several hundred square miles, "we have under contract a supply of six trillion 650 billion 444 million cubic feet of natural gas, or 700 million cubic feet a day for 20 years."

Mr. Hedrick then moved the pointer to an area along the Texas gulf coast near the Mexican border.

"Here," he said, "as of January 1, 1956, we had two trillion 545 billion cubic feet under long term contracts, a supply that should last into 1974."

The two areas are the present main sources of natural gas supply for the Chicago metropolitan area. Through more than 3,000 miles of high pressure transmission pipelines 1,042,000,000 cubic feet of gas moves daily northward to near the southern tip of Lake Michigan, where most of it goes into the main lines of Peoples Gas Light and Coke Company, Northern Illinois Gas Company, North Shore Gas Company, and Northern Indiana Public Service Company, or into storage.

But, as Mr. Hedrick explained, a probable eventual depletion of natural gas supplies in those two areas "doesn't mean things will come to an end at that time." Far from it, in fact. Both the Peoples Gas system and Northern Illinois Gas are taking part in exploration for natural gas reserves in the Gulf of Mexico. Marvin Chandler, president of Northern Illinois Gas, also states that 20 years hence the Chicago area may be moving into an era in which it will begin to use natural gas made from coal.

Natural Gas Supply

In addition to offshore drilling of exploratory wells, the Peoples Gas system has completed other plans for increasing its natural gas supply. These plans, involving an investment of more than $150 million, cover the purchase of more gas, enlargement of the capacity of the system's long distance pipelines, e tension of pipelines to addition fields, and a new underground st age project in addition to t Herscher dome underground stora field, which has a peak day delive capacity of 430 million cubic fe of gas.

Since 1946, the Peoples Gas syste has tripled its size in terms of doll value, and has experienced a fi fold increase in the peak day deliv ability of its system. It has extend transmission capacity, built ne lines, and steadily increased stora capacity.

These moves combined with t present program of still greater e pansion demonstrate the compan intent to provide adequate gas se ice for the growing region served it and by the utility companies th buy gas from its pipeline com

A short time ago, the fed ernment approved a pl the Natural Gas Pip of America will into Jack and Texas. Thi

ovide more gas—hot coal-tar enamel is applied as a pro-
e coating to a section of 30-inch pipeline being laid for
exas Eastern Transmission Corporation

Checking equipment at Peoples Gas System's underground storage station at Herscher, Illinois

Supply for Gas Utilities

omers and more home heating predicted

an eventual capacity of 240,-000 cubic feet daily will be an prtant addition to the system.

second major phase of the ex-ion program is a proposed new ection with Colorado Interstate Company at Beatrice, Neb., h will make a new source of ral gas available for Chicago. will require a $90 million in-ent to add a third pipeline nost of the distance from Bea- to Joliet, Ill., to add to the city of the present dual line of ral Gas Pipeline, and for other ties.

Underground Storage

order to add to the under-nd storage facilities of its sys- Peoples Gas has filed an ap-ction with the Federal Power mission for approval of a new ct in the Cooks Mills field in -central Illinois. This develop- will cost $4 million. Also Peo-Gas has recently formed a new diary to investigate and develop ional underground storage in fields [illegible] Texas Illinois

Drilling operations in the Gulf of Mexico have resulted in two major oil discoveries, and gas sands also have been discovered in these two tracts. Illinois Commerce Commission approval has been obtained for an additional $10 million investment there. But, company spokesmen say, plans for bringing offshore gas to market must await further proving of the reserves and development of gathering facilities.

Northern Illinois Gas within the last year has begun a searching for future supplies on its own in the Gulf of Mexico through a subsidiary, NI-Gas Supply, Inc. In its service area which includes a large portion of Northern Illinois outside Chicago, the company has $75 million earmarked for expansion, system revision, and equipment through 1959. It also has plans for an underground propane storage cavern mined out of solid rock several hundred feet below the surface on a 27 acre site between Bensenville and Des Plaines. Capacity of the cavern would be about 900 million cubic feet of gas.

Both Peoples Gas and Northern Illinois Gas continually are making studies involving the potentialities of their respective market areas. Both companies foresee increased use of gas in their service areas, as does Northern Indiana Public Service.

Northern Indiana Public Service, which supplies the great industrial district including Gary, Hammond, East Chicago, and La Porte, believes the future of gas in its territory is very promising. Dean H. Mitchell, president, said the use of gas by residential customers in his company's area has more than doubled in the last ten years and that with new applications such as clothes dryers, air conditioning, and incineration, this upward trend should continue.

"A large increase in the use of gas for home heating is expected," said Mr. Mitchell, "in addition to greater use by industrial and commercial customers." Since 1949, the number of home heating customers in the Northern Indiana Public Service area has more than tripled.

The outlook for Northern Illinois Gas, whose territory includes many fast growing suburbs, also is promising. At the present time the company estimates its saturation of gas ranges is 95 per cent; water heaters, 72 per cent; space heating, 38 per cent; refrigerators, 8 per cent, and clothes dryers, 7 per cent.

"Our future saturation of the

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In preparation for this future, Northern Illinois Gas Company expects to spend more for construction in 1957 than in any year in its past. Present plans call for a continuing high level of construction during the following three years. For the four-year period ending in 1960, expenditures for new and expanded gas facilities are now expected to total $75 million.

This indicates the confidence the Company has in the future of its 10,000 square mile service area—*a future which will be even greater with the tremendous stimulus its growth is bound to receive from the prospective opening of the St. Lawrence Seaway and the further development of the Cal-Sag Waterway.*

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above appliances will depend o number of conditions, but if it assumed that the customer would act in 1975 to specified condition he would today, and economic c ditions stay the same, a reasona approximation seems possible," Chandler said.

Northern Illinois Gas expects following saturation of its ma area in 1975: Gas ranges and w heaters, 80 per cent; space heat 75 per cent; gas clothes dryers, per cent; gas incinerators, 12 cent; and gas fueled air condit ing, 10 per cent. Using the ab figures as given for 1975 and ass ing that Northern Illinois Gas have a proportionate share of saturation in intervening years, company forecasts the annual sumption of gas per residential tomer as follows:

1954 (actual)	826 therm
1960	1,270 therm
1965	1,423 therm
1970	1,501 ther
1975	1,534 ther

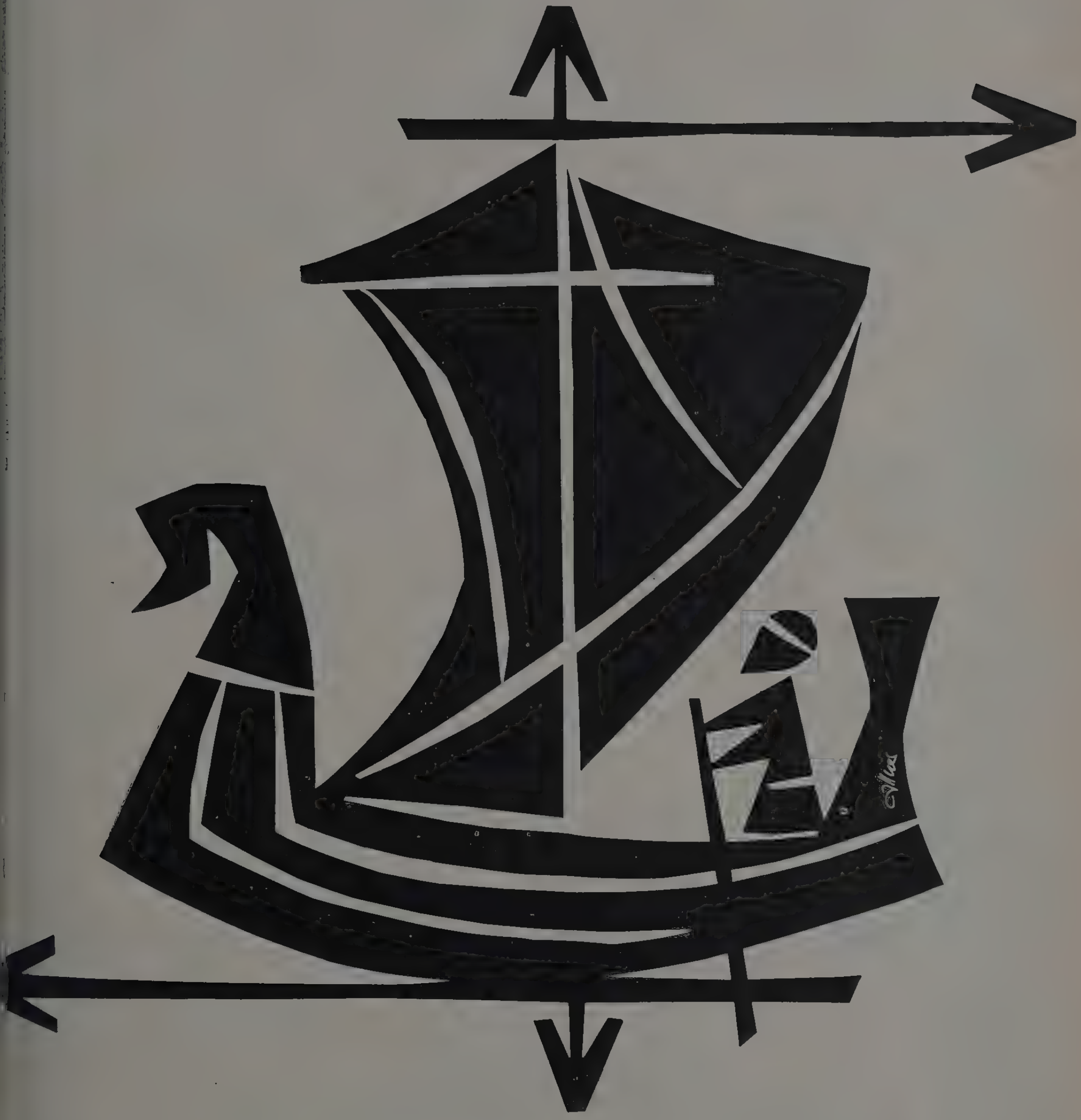
By 1975, the company estimate total residential load will be a 130 billion cubic feet a year, a 3½ times what it was in 1955. N 400,000 new customers are expe by 1975 in addition to the pre 515,000 customers, most of whom increase their present gas load the next 20 years. In addition t increased residential load, Nort Illinois Gas also is planning fo creased commercial and indus use which will bring the total an load to 160 billion cubic feet.

In Chicago proper annual res tial gas sales by Peoples Gas by are anticipated at 84 billion 700 lion cubic feet against 58 billion million last year. By 1965, total dential sales are expected to be billion 800 million cubic feet.

Space heating sales alone by are expected to be 51 billion million cubic feet and by 196 billion 800 millions. Peoples G 1956 sold 27 billion 200 milion feet of gas to space heating cu ers.

The great growth in the res tial market for gas in Chicago i last several years has been fo heating. In July, 1946, People was serving 30,000 residential heating customers. Since 1946 company has added 194,000 res tial space heating customers, times as many as 11 years ago.

LESMEN KNEW THEIR WAY AROUND IN 850 B.C.



anship was more important than manship when the Phoenicians were asters of world trade. Without charts mpasses their merchants sailed as far e Scilly Islands for tin, to Spain for , to Corinth for dyestuffs, perhaps to the Baltic for amber.

lay, successful sales campaigns are o be planned with Rand McNally The 1957 Commercial Atlas includes such vital information as the estimated retail sales of every state, county and independent city in the United States. Used with our new Sales Control map, it helps a sales manager plan selling strategy and keep an accurate picture of progress in the field.

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ever, there is still a great unsatisfied demand for space heating service in Chicago and, as plans for additional gas supplies materialize, space heating is expected to continue to account for the major share of the increase in residential gas sales.

There are many different varieties of residential premises in Chicago in contrast to the suburbs where most residential space heating is in single family dwellings. In the city, Peoples Gas generally divides residential properties into three categories—dwelling units heated by an individual central heating plant, dwelling units heated by circulating room heaters, and multi-unit buildings heated by a single central heating system. Following are the approximate percentages of these three types of premises served by gas heat now and the percentages estimated will be served in future years if gas supply is available.

	Now Per cent	1960 Per cent	1965 Per cent
Individually heated units			
Central heating plants	50	65	75
Circulating room heaters	30	60	72
Dwelling units in multi-unit buildings with single central heating systems	1	10	17

Service of the space heating market, of course, requires a utility to supply much larger quantities of gas on cold winter days than on the average day of the year. For estimating purposes, Peoples Gas assumes that the coldest day of the year will have an average temperature of seven degrees below zero. Last winter it was estimated that all of the residential, commercial, and industrial customers in the city would have required about 585 million cubic feet of gas on such a day, and residential heating customers alone would have used 338 million cubic feet, or more than 58 per cent of the total.

If plans for obtaining additional gas supply materialize, Peoples Gas estimates that the total send-out on such a cold day in the 1960-61 winter will be 956 million cubic feet and the residential heating customers will use about 600 million cubic feet, or 63 per cent of the total.

Because Chicago has relatively little vacant land for increasing its housing supply, future increases in residential sales will be mainly space heating or new gas appliance installations in existing buildings.

For the future, Peoples Gas ma
the following estimates:

1. At present more than 90
cent of Chicago families use
ranges and it is expected that
share of the increased number
families in future years also will
gas for cooking.

2. There now are 150,000 gas
frigerators in Chicago. The num
in use by 1965 is expected to
proach 200,000.

3. There are about 100,000
clothes dryers in Chicago now. I
expected that over 100,000 more
be installed by 1960 and that by
more than half of the homes
small flat buildings will use gas f
dryers.

4. The market for modern in
erators for homes and small build
is in its infancy, but a large
portion of the big apartment b
ings constructed in Chicago in
last few years have installed cen
gas incinerators. Old apartm
buildings that convert to oil
from coal also are likely to in
gas incinerators.

5. The number of dwelling
in Chicago served by gas autom
water heaters has increased by a
200,000 in the last 10 years. Pr
saturation in houses and two-a
ment buildings is about 75 per
and the proportion is expected t
crease to 82 per cent by 1960
nearly 90 per cent by 1965. A
40 per cent of the families occup
buildings having three to six
and apartments in connection
stores, are served by gas autom
water heaters, and this proporti
expected to increase to 53 per
in 1960 and to 65 per cent in
At present gas automatic water
ing is not as predominant in l
apartment buildings, but in th
few years it has become more
ular. For example, 40 per ce
the dwelling units in buildings
more than seven apartments
were built in 1955 are served b
water heaters.

Both Peoples Gas and Nor
Illinois Gas believe summer ai
ditioning of homes could brin
siderable new business to th
industry. The load would be a
profitable one since it is a comp
off-peak load. Northern Illin
ports that saturation of its mar
only a fraction of one per cen

Right Job Right Girl

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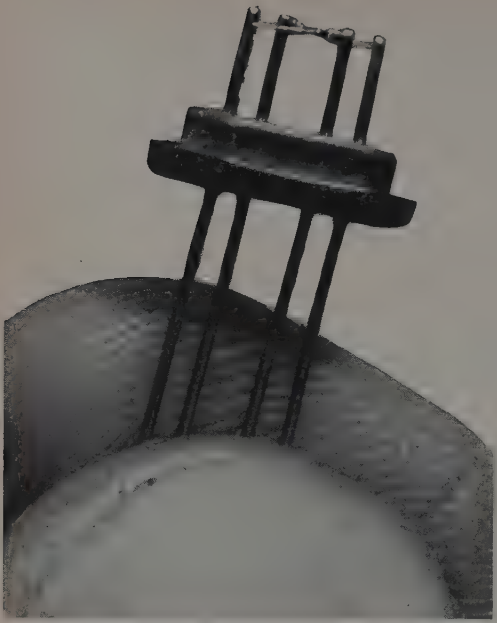
Tomorrow's Telephone

By
Russell Freeburg



The tiny wires in this experimental transistor (dwarfed by the finger and thumb) are made of gold and are less than half as thick as a human hair

IN A community on the northwest rim of the big Chicago metropolitan area an experiment is underway that foreshadows amazing changes coming in the telephone.

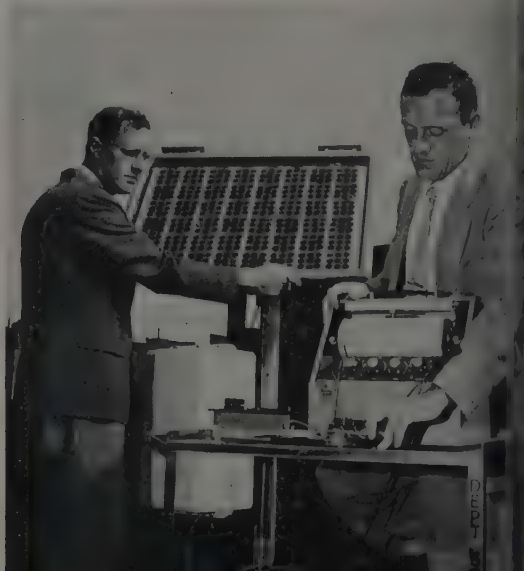
The community is Crystal Lake, population 8,000. There in some 300 instruments the familiar ring of the telephone bell has been replaced by a clear, one pitch, musical tone. It's a pleasing "tweet, tweet, tweet" in a sound range from about B to above middle C to high C, as the subscriber desires.

Music instead of a bell is one of the many changes that telephone officials say can be expected as electronic systems bring faster service, memory equipment, and picture phones. Only two years away is the world's first electronic telephone exchange which will go into experimental operation in Morris, Ill.,
1959 to provide service for m
than 3,000 Illinois Bell T
phone company customers. Bell
tem engineers describe the excha
as the forerunner of a radically
proved and faster means of rout
telephone calls. They say it
mark the start of a gradual cha
to all-electronic switching syst
throughout the country.

Continued growth in the use
the telephone also is predicted.
1975, Illinois Bell says, Chic
proper will have about three mil
telephones as compared with
800,000 now. The company br
down these figures as follows:
dential telephones—2,100,00
compared with 1,100,000 at pres
business telephones—900,000 ag
700,000 now. The company beli
that 18 years hence about 90
cent of the city's homes (ag
roughly 50 to 60 per cent this
will have one or more teleph
and that two out of three reside
will have two or more teleph
against one out of five now.

But, back to Crystal Lake and
musical telephone, whose s

Left: a Bell Telephone Laboratory technician demonstrate
experimental picture phone. Below: Bell engineers testing a
battery which is now furnishing power directly to a rural phon



aster, With Pictures and a "Memory"

Experiments now underway foreshadow amazing changes to come

es from a small transistor loud-
ker unit in its base. Although
tone feature is one of the sim-
of an electronic system, tele-
ne men believe it is one of the
ures most likely to capture at-
ion. They describe the tone as
asanter sounding, easier to dis-
uish from other sounds such as
ringing of door bells and alarm
ks, and more readily heard by
ple with some types of impaired
ing." Each instrument will re-
d only to its assigned tone. A
y line customer hears only his
tone.

Speed In Switching

ess flamboyant than the musical
but equally revolutionary will
he switching. For the telephone
omer it will mean increased
d in making connections. Here
hy. Dial switching systems now
netal switches, called relays, that
open and shut under control
lectrical impulses and automati-
connect the customer with the
hone being called when num-
are dialed. In electronic switch-
the switches themselves won't
e sort that make metal to metal
acts, but will be a network of
gas tubes with electronic de-
doing the brainwork to guide
d numbers on the right path
ugh them. In effect, the new sys-
will really be a computer tied in
a switching network. While
l relays operate in about a
sandth of a second, elements
e new electronic system are ex-
d to go through their paces a
sand times faster—in a mil-
h of a second, or about 100,000
s faster than you can wink your

key part of the telephone in-
y's all-electronic system will be
iny transistor, which is heralded
e coming workhorse of elec-
cs because it does most of the
s a vacuum tube can do, is
ler, and has longer life. Because
e small size of the transistor and
other modern electronic devices to be used in the new system—resistors, varistors, capacitors, and other components which affect the flow of electricity in various ways—considerable space saving will be possible. An Illinois Bell official declares: "Not only will there be fewer units of equipment, the units themselves will be much smaller in size. Eventually, the result will be a saving in the building space needed."

Transistors are expected to make maintenance easier, and packaged units comprising groups of components and their circuitry are foreseen as system building blocks. It is probable the packaged units will be built so that they may be plugged in place and removed from equipment easily. Automatic indicators will signal an attendant in the event of trouble and spot the cause so that it can be corrected quickly.

Another telephone development likely for Chicagoans in the next 20 years is something telephone men call "permanent memory." Small photographic plates will store millions of bits of information. Depending on what information is stored, telephone companies will be able to control the way their systems respond to customers' wishes. For example, the following:

1. Calling those persons whom you phone frequently. Permanent memory will arrange it so that in the central office on a very simple signal, it would dial these calls. If you wanted to talk with Aunt Bess you would need only to dial, say, number 3. When you did this, the memory would recognize the party you wanted, and would direct the switching system to ring the number.

2. Making business calls such as an executive does who makes a practice of calling a dozen branch managers in sequence every Monday morning. The memory could be "programmed" to simplify that job so he would need only to dial a simple code number and the central office would go to work. First it would call the first number on his list. After he finished talking with that connection, the memory would get the next number, and so on until all calls were completed.

3. The one-man office occupant who is going out of town for a few days. Before he leaves he will dial a code number. This will instruct the telephone office that he wants his calls answered in his absence. The equipment will do this and make recordings of any messages from people who call. Before he heads for home he will be able to dial the central office and get his messages.

4. The big organization with a private switchboard. With electronic

Using the phone booth of tomorrow will be a cinch even if you are loaded down with packages. The person using booth can speak and hear without holding instrument

switching the telephone industry expects it will be able to put the whole switchboard on photographic plates in its office building. So, here again, it would become just a matter of programming the memory and the switching system acting accordingly. Also, in this type setup, the telephone company predicts that if you're talking with one person and want to get a third party into the conversation, you will be able to dial his extension number while you're talking and without having to hang up.

Still more changes, none in the realm of electronics, are predicted for the telephone in both home and office. The telephone industry is working on a home communication system that will handle calls in the usual way and also enable a person to talk between one telephone in the house and all others. It will also permit the person to answer the doorbell by talking from any of the instruments to a loudspeaker at the door.

Already in use in some homes and offices is a "hands-free" telephone for which demand is increasing. This type equipment is expected to be common in 20 years. Combining a miniature microphone, loud speaker and a simple "switch on—switch off" button, the hands-free phone permits a businessman to take notes, refer to records, or hold a desk-side conference in which others in the room can join in. It enables the housewife to talk while ironing, baking, or doing other household chores.

Color Telephones

A big growth in use of color telephones is expected. Illinois Bell expects to install one quarter million color instruments in 1957. They now come in eight colors. In 1956 about 100,000 color phones were installed. Year by year there will be more individual lines and relatively fewer party lines.

Chicago is now 92 per cent dial. Illinois Bell territory as a whole (365 communities in Illinois, and Lake and Porter counties in Indiana) is about 85 per cent dial. The company tentatively estimates it will be all dial in the next decade or so. Many factors will govern c pletion of a 100 per cent chang dial, however, among them be capital investment, availability materials, and economic conditi

Transocean dialing is not at remote, according to Illinois Bell ficials. In the next two decades, l distance dialing is expected to m great strides. Already customers certain communities are able to directly to an estimated 18 mill phones in 23 states across the co try. By the end of this year, the nu ber is expected to rise to 23 mill phones. In the Chicago area th are 29 communities served thro eight exchanges which can dial l distance calls to nearly 700 citie the United States, including N York City, Philadelphia, Portla Ore., Sacramento, Calif., Salt L City, San Francisco, and Wash ton.

For these people, the entire co try is divided into numbered ar each of which has been assigne special three digit "area code." place a direct distance call, cust ers dial the area code, followed the two letters and five figures of

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ber. In a matter of seconds the ed telephone will begin to ring. ew ways of sending information n place to place are being de-ped. Already, a continuous sam- of any kind of information — ds, pictures, or music — can be slated into code. These codes ist solely of pulses. They travel peeds of millionths of a second, ast that when they are inter-en or sandwiched, many coded sages can be carried at once. At distant end, each original mes- is accurately recreated.

he multiplying of local com-ication paths should make a lot hings possible in the future that not possible now. For example, u want two or three telephones our house now instead of one, itional wires are required. The is coming when telephones will dded without adding wires.

here are prospects for longer s which would be able to carry ense loads of raw data and pic-s. Last summer Bell laboratories ved a gadget called the picture-ne in a demonstration of one l of personal television over a phone line.

Outside the home, Illinois Bell believes increases are inevitable in the next 20 years in public telephones and mobile units. Already Chicago leads all other cities in the world in the number of public telephones per 100 population. It has 25,000 public telephones, 500 of which are outdoors, and 37,000 coin phones in factories and small firms.

"Hands Free" Booth

In connection with telephone booths, a "hands-free" telephone booth is in the experimental stage. In place of the familiar public telephone instrument it contains a recessed speaker and microphone in its soundproof walls. A switch and knob to control the sound volume are the only controls and the person using the booth can speak and hear without holding any instrument. At present, such an installation can only be made at a location where an attendant is on duty to handle calls since there is neither a coin box nor a dial.

There are now about 3,000 vehicles using Illinois Bell radio-telephone service. This number is expected to grow in coming years. At Lake Bluff there is a ship to shore transmitter station that covers the entire United States and can serve about 94,000 ships. Greater use of the station is expected with the completion of the St. Lawrence Seaway.

In the way of mobile units, more central offices in trailer vans are expected to be placed in use in the future. Fitted in the vans will be intricate dial equipment. The telephone van will pull into a new housing development at the same time other vans are delivering household goods. This was actually done for the first time last year in Schaumburg, northwest of Chicago. The van office will have no permanent home, its primary purpose being to provide temporary facilities during the time it takes to build a permanent office installation.

Credit cards are expected to increases in usage. They permit callers to make long distance calls from any place and charge them to their home or office phone. There are about 45,000 credit cards at present in Illinois Bell territory, 30,000 of which are in Chicago.

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COMPONENTS

Have you ever looked "inside" an electronic device — a radio, for example? If you have, you probably noticed that the finished assembly consisted of hundreds of different parts: coils, condensers, transformers, tubes, tube sockets, plugs, etc. Each of these components demands specialized designing and manufacturing "know-how," specialized machinery and specialized talent.

inch's contribution to the electronics industry lies in the production of such things as tube sockets, termi-al strips, male and female plugs and many other types of electrical connecting devices. Cinch has been a eader in the development and manufacturing of such electronic components for more than a quarter of a entury — since the very birth of the industry.

evelopment of new ideas and products is essential to maintain leadership in the young, expanding and in-reasingly complex electronics industry. We at Cinch fully intend to maintain our leadership through the mprovement of our present products and the development of new products for both new and old applica-ions. A few years ago most of our products were made for the radio industry. Today, in addition to serv-ng the radio industry, we manufacture component parts for television sets, telephone switchboards, pho-ographs, vending machines, automatic pin-setters, electronic computers, guided missiles, aircraft and ountless other electronic devices.

lthough Chicago is undoubtedly one of the more important centers of the electronics industry, Cinch be-an operations here even before the electronics age was upon us. Our main plant is still located here. We ike Chicago because of its central location with respect to our customers and suppliers, because of its large ool of skilled and semiskilled labor and because of its excellent freight transportation facilities.

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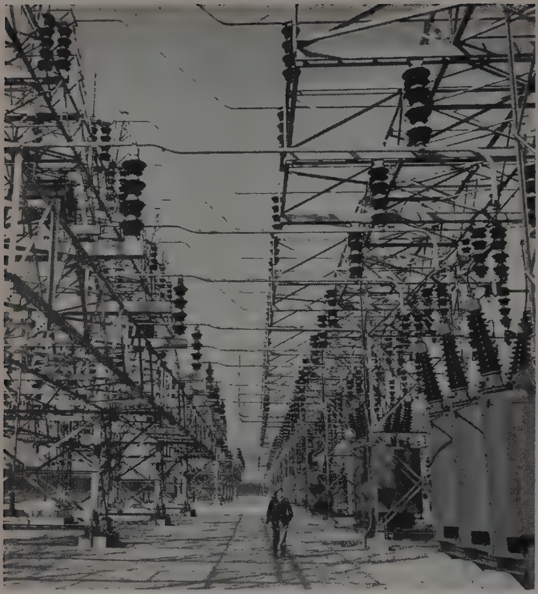
Electric Industr

By

Ed Allen



The 138,000-volt switching terminal at Commonwealth Edison system's new Will County Station

EVERY time an industrial wheel turns today it calls for the magical assistance of the modern genie, kilowatts. New lighting that sells more goods for the modern merchant and air conditioning that brings customers into the stores and keeps them there, call for the same genie, as do many of the household devices that aid the modern homemaker.

Generating capacity and kilowatt hour sales of the Commonwealth Edison System have quadrupled in the last 25 years. The average residential customer today uses almost four times as much electricity as he did a quarter-century ago.

Kilowatt hour sales show a sharp rise over recent years in the three major categories. Industrial sales have jumped from 4,430,022,392 kilowatt hours in 1946 to 7,846,040,672 in 1956, an increase of 77 per cent. Commercial sales in the same period increased over 300 per cent, from 1,007,471,302 to 4,117,953,296 kilowatt hours, and residential and rural sales jumped 150 per cent from 1,662,160,246 to 4,146,732,446 kilowatt hours since 1946.

Commonwealth and its Public Service Division now serve approximately 1,900,000 customers in an 11,000 square mile area of northern Illinois, including Chicago. Edison's gross revenue last year was $360,106,248.

The result of these growing demands is one of the most gigantic expansion programs in the area, to provide ample electric power for all fields. Commonwealth Edison Company has spent a billion dollars on enlarged facilities since World War II, and its plans call for another two-thirds of a billion more in the next four years alone.

Plant Facilities

More than $400 million has been spent on power plant facilities, boosting capacity from 2,300,000 kilowatts in 1946 to 3,859,000 kilowatts now. At the same time, new and larger lines and distribution centers have been built to bring power from the generating stations to homes, factories, stores and offices.

Equipment capacity also has increased. The first turbine-generator placed in service after World War II had a capacity of 107,000 kilowatts. In 1949 and 1950, 150,000 kilowatt machines were being installed, and in 1955 one generator of 207,000 kilowatts capacity went into service.

The voltage of transmission lines, those super-highways of the elec
cal industry, ranging from 34,
volts to 230,000 volts, has n
changed in recent years. But m
of the higher voltage lines have b
extended throughout the area,
bring larger supplies of power
waiting customers.

Edison is planning much la
generators and higher voltage l
in the immediate future to m
rapidly growing power requ
ments. In 1957 the company's
260,000 kilowatt generator will
into service at the Will County
tion. In 1958, two 305,000 kilow
generators will be put in service,
at the Fisk station and one at W
kegan station. A third 205,000 k
watt generator is on order.

Major installations such as th
will boost Edison's generating
pacity to 5,300,000 kilowatts in 1
from its present 3,859,000 kilow
and more than double its 1945
pacity of 2,300,000 kilowatts. T
represents an expansion of 130
cent in the 15 years from 1945
1960.

Two other major steps in
growth of Chicago's power su
are under way, the construction
nuclear power plant and the bu
ing of an extra high voltage
which will operate at 345,000 v
The largest all-nuclear plant in
United States will go into servic
the Edison system in 1960.
boiling water reactor, with a ca
ity of 180,000 kilowatts, will be
stalled at the company's new I
den station at the junction of
Des Plaines and Kankakee river

Edison has indicated that whi
expects nuclear power to pla
definite part in the country's fu
it is not optimistic about com
tive nuclear power in the immed
future. Dresden station is being
for a contract price of $45 mil
of which $30 million will be
for and capitalized by Edison.
remaining $15 million, for rese
and development, will be paid
a group of associated compa

The author is midwest editor, "Electrical World."

xpects to Double Output in Next Decade

Air Conditioning Will Change Peak Season from Winter to Summertime

ding Edison. Based on a $30 on dollar cost for the plant, r costs will be ¾ cent per att hour, which is about the as for the modern coal burn- plants. However, if the full million is charged to power , the cost per kilowatt hour be one cent, which is about hird more than the cost of ucing power in a modern coal ing plant. The hope for eco- ical nuclear power in the fu- lies in the possibility that with experience in the field and a er knowledge of nuclear ce it will be possible to cut osts of building and operating ear plants.

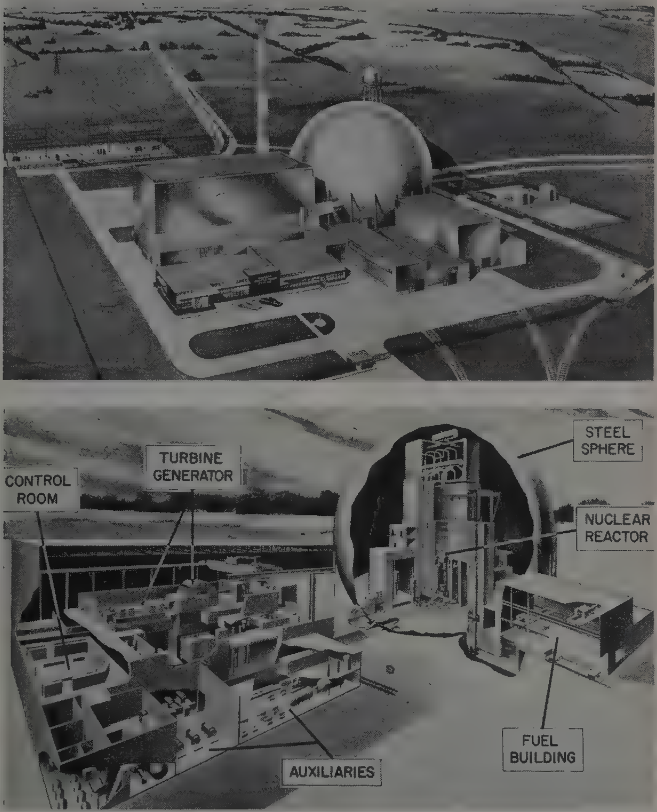
New Interconnection

lison's first 345,000-volt trans- ion line will be part of a new connection between two of the try's largest power systems, on and American Gas and Elec- Company. The line will be 90 s long and will connect a new on substation to be built at lings Grove, near Orland Park, a new A. G. and E. terminal at Carlisle, Ind.

the electric power field the 00-volt transmission line is valent to the new eight-lane -way of the highway system. is the highest voltage now in ation in the country.

ne new line ultimately may as much as one million kilo- s between the two systems. It permit one system to help the r in emergencies, and will im- e power system economies for companies.

out half of the funds required he billion dollar expansion pro- already accomplished were ided from cash resources on l and from depreciation accruals retained earnings during the n-year period. Of the remain- $338 million was raised through of bonds and $130 million ugh the sale of stock.



Top: Layout of Dresden Nuclear Power Station to be located 50 miles southwest of Chicago. Below: Cut-away drawing of the 180,000 kilowatt boiling water reactor plant. It is expected to start operation in 1960

Of the two-thirds billion for the current four-year program, about $330 million will be raised through financing, including $50 million in new bonds this year. The $320 million balance will come chiefly from cash resources plus undistributed earnings and depreciation accruals.

New uses for electricity are adding to the area's mounting power requirements. Typical of these is air conditioning. Prior to 1950, the only air conditioning of consequence was found in theaters, restaurants and a few stores. But in recent years, air conditioning has become increasingly popular in stores, office buildings and homes.

Total air conditioning load on the Edison system it is estimated has trebled between 1950 and 1956. Since 1950 room coolers in use in the service area have increased from 30,000 to 220,000 for 1956.

Air conditioning is changing the shape of Edison's business picture. The period of peak load traditionally has been in the winter, usually around Christmas time, with a distinct lull during the summer. The growth in air conditioning and other load has raised summer demand to the point where, in 1955 the summer power requirements exceeded those of the previous winter. If the trend continues, the heaviest power requirements would occur in summer with the comparative lull coming in winter.

Edison also is participating in two

60 years ago, this year, Burton-Dixie Corporation was founded in Chicago as a Chicago company. With the same restless, progressive spirit that has always dominated the Midwestern scene, Burton-Dixie has grown until today it is nationally known as one of the world's leading manufacturers of automotive upholstery, quality bedding, and upholstery products for furniture and bedding manufacturers.

It is with a feeling of pride in accomplishment that we say, "Wherever you go, at home or away, you will find quality Burton-Dixie products manufactured to the highest standards and dedicated to your comfort."

AT HOME
Burton-Dixie World Famous Slumberon mattress, pillows, highly styled dual purpose seating and sleeping equipment.

OR AWAY
America's finest hotels and motels feature *Burton-Dixie's* seating and sleeping equipment, for your comfort and relaxation.

PUBLIC TRANSPORATION
On land, sea or in the air, you'll find *Burton-Dixie* quality seating and sleeping equipment.

OR IN THE FAMILY CAR
Your riding comfort is assured by *Burton-Dixie* quality seat cushion units.

Burton-Dixie Corp. Chicago Plant and Executive Offices—2024 South Racine

Manufacturing Plants in: Blacksburgh, Dallas, Denver, Detroit, Kansas City, Lansing, Memphis

national campaigns, the "Live
ter — Electrically" campaign and
"Housepower" promotions. The
is designed to encourage residen
and rural customers to use more e
trical appliances. The second
designed to encourage wiring w
sufficient capacity to bring am
electricity to the numerous ap
ances in the modern home.

Supplementing the "Housepow
promotion has been the local "
Plus" program. In this activity,
son pays part of the cost of install
wiring required when a customer
stalls one of the larger appliance
Increased mechanization and e
trification of industry, widening
of new home appliances, and
son's own promotional activit
make it reasonable to envisage
electric power industry of 8,000,
kilowatts in Chicago by 1967-68
twice the size of today's 4,000,
kilowatt system. By 1975 it m
likely will have reached 12-14,0
000 kilowatts to keep pace with
cago area growth.

Decentralization

Edison, like a number of o
large companies, has started a
gram of decentralization. One
son official says: "We are doing
decentralization job now becaus
need it now. But we are doin
for tomorrow, too, when the
will be even greater than it is tod

The decentralization progra
directed at improving operat
and service and making it pos
to continue a high quality of se
at the local level as the com
continues to grow. A new neigh
hood service building is under
struction at 75th street and L
dale avenue, to serve the area o
city south of 39th street. Anc
service headquarters is to be
on the west side on the Congres
pressway at Laramie for servin
area between 39th street and N
avenue. For the area north of N
avenue, neighborhood service
be provided from existing build
on the northwest side. Four
torial divisions serve the P
Service Company division area
side the city.

The three divisions within
City of Chicago will each have
watt hour sales exceeding tho
the power company that s
Washington, D. C.

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The scene rarely changes on the "floor" but the volume handled keeps growing

Optimism Reigns For Future at Midwest

Today it is "Third Largest" market: the trend is upward

By Russell Freeburg

MIXED with the ticker tapes, quotation boards, and ringing telephones of brokerage houses in the La Salle Street financial district is a feeling of optimism about the future of the Midwest Stock Exchange and the growing stature of Chicago as a great securities market.

The Midwest Exchange, since its formation in December, 1949, through consolidation of the old Chicago Stock exchange and exchanges in Minneapolis-St. Paul, St. Louis, and Cleveland, has experienced the greatest gains in both share and dollar volume of any securities market in the country. It has become the focal point of much local financial enterprise and is now the third largest exchange in the country, and the largest outside of New York City. This, together with Chicago's natural position as the dominant financial center of the middle west and the careful planning and establishment of progressive policies and practices by the Midwest exchange, has set the stage for further expansion.

One of the first steps in the advance will take place this summer when the Midwest Stock Clearing Corporation, which handles all securities that are deliverable between brokers as a result of buying or selling on the exchange, moves to quarters more than twice as large as its present space.

Cashiering Staff

The clearing house now handles the trades of 65 local members, and 153 out-of-town members and also the books of 20 specialist accounts involving 110 stocks. In the latter operation, it serves as the cashiering staff to handle receipts and deliveries of such securities. In its operations for out-of-town members, the clearing house does complete receiving and delivery service of their transactions.

At the same time the clea
house is providing for larger op
tions, Chicago brokers expect a
tinuation of their growth of the
seven years, when stock broke
firms here rose to 164 from 112
the aggregate capital of invest
banking firms with headquarter
Chicago grew more than 50 per
to at least $65 million.

Both A. C. Allyn, head of A
Allyn & Company, and Howar
Buhse, managing partner of H
blower & Weeks in Chicago, sai
is safe to assume there will be
other 50 per cent increase in ca
of investment firms in this ma
in the next ten years.

"In fact," said Buhse, "I think
growth will be even faster in the
ten years than in the last seven.

A number of factors enter into
expected expansion of Chicago
securities center, among them
St. Lawrence seaway now under
struction, decentralization of in
try, increasing population, an

(Continued on page 260)

Electronics

(Continued from page 84)

colors and intensities to suit ous moods and purposes.

ural television will utilize a flat n on the wall giving greater ty because of the size of the es. This may be possible in and in three dimensions, giv- still greater feeling of actuality. r television, already here, will be y improved. The heart of color is the picture tube and as yet it o complicated and expensive to e general acceptance. Industry ers are confident, however, that er and less costly color TV is on way.

ne vacuum tube has been called 's most versatile instrument. It be made to see, hear, smell, feel, , count, regulate, and to some nt, remember. Electronics devices d on the tube, sort, test, measure count products.

ecently the tube has acquired a le brother," mighty and versatile, ne transistor. Last year the team nventors from the Bell Labora- s who devised it a decade ago — iam Shockley, John Bardeen and ter Brattain — received the el prize for science for their revo- nary device. The transistor, al- gh tiny as the rubber on a lead il, is much more rugged and ble than the radio tube with its ate filaments.

Personal Radios

ne compactness, long life and bility of transistors make them cially useful in hearing aids and ew personal size radio receivers. y use so little current that manu- rers don't even bother to put g-in cord in most transistor sets.

here are experts who even vis- e a personalized TV set, small ugh to fit into a lady's handbag, ks to transistors.

me authorities say that some 80 cent of vacuum tube functions be performed equally well by sistors, with savings in space, ht, and power. Such savings are rtant not only in civilian prod- but especially in airborne elec- gear used in national defense.

ransistors as well as tubes are rtant components in guided mis- and industrial control systems, and they are destined for vital roles in earth satellites, rockets to the moon, and the enormously complex electronic systems that will be required if space travel becomes a reality. Some electronic computers already employ upwards of 9,000 transistors. Transistor production in 1955 was 3.6 million; last year it ran 13 million, by 1966 it is expected to reach 290 million annually.

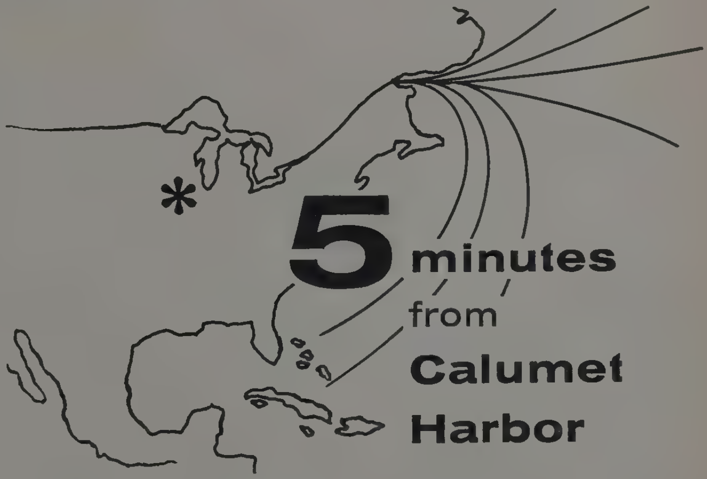
One recent significant development in TV was the sudden emergence of the so-called portable TV receivers. In 1955 production was 250,000 sets; last year the total ran to 1.8 million. In 1957 this figure is expected to be doubled. Beyond this few can see clearly, but the trend toward portables, especially as extra sets in the home, is expected to keep on growing.

Industrial electronics, especially automation techniques, made long forward strides in 1956 and ran to nearly a billion dollars. Military electronics in 1956 amounted to about $2.7 billion, about half of the industry's factory sales and up ten per cent from 1955.

Closed circuit television, already mushrooming, is expected to grow spectacularly in the next ten years. It may become a big factor in easing the teacher shortage which is expected to become even more acute as the crop of war babies reaches school age.

The Radio-Electronics-Television Manufacturing Association and the Ford Foundation are co-sponsoring a several years' test of a pilot educational TV system in the public schools of Hagerstown, Md. The intrinsic value of television as a teaching tool already has been proved and this project will help educators to perfect new techniques for using this audio-visual medium.

Meanwhile more and more industries have found profitable new uses for closed circuit TV which can provide active visual data from places where it is dangerous, uncomfortable or impossible for human beings to go. Other types of business are finding uses for this type of TV. These include banks and clearing houses, and public service companies. Fur-



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This is said to be the world's first sun-powered radio phonograph, a development of Admiral Corporation. The solar battery (inset) is located on top of the set and contains 48 silicon solar cells

thermore, closed circuit TV through which a major company can gather its representatives in hotels in a few major cities for conventions and sales meetings has already proved its worth. TV conventions save time, travel and sizeable sums of money. In the realm of medicine, TV, especially color TV, is proving its efficacy. Color TV is a valuable adjunct in the operating room in teaching surgical procedures and techniques.

Another new electronic development may enable man to see farther than ever into the universe, multiplying faint light and images through the conversion of light into electrons which in turn will recreate images on phosphorescent screens.

Paul V. Galvin, chairman of Motorola, Inc., one of the pioneers of the modern electronics industry in Chicago, is optimistic: "Throughout the history of the industry's growth the Chicagoland area has been an important factor. It will continue to be in the future. The outlook is bright.

"In forecasting, I assume that the license of mixing my personal hopes with realities and erring on the side of optimism is granted me. Uncertainty is a necessary element in the dynamics of the U. S. economic system, and the unrest abroad seems to be a self-perpetuating factor to be considered. We have, however, the history of the electronics industry as something of a guide to the future. A prudent view might project an over-all pattern of growth at the same rate as at present. This would mean that an industry now provid products and services nationally w a value upwards of $10 billion nually, as compared with $5 bill five years ago, should gross at le $15 billion by 1960 and $20 billi by 1965."

The flow of new production cause expansion in Chicago, he ad Motorola is about to build a structure of 136,000 square feet its main location on Augusta bou vard. A two-floor building is to superimposed on the present pla

Chicago is home base for su other manufacturers as Admi Zenith and Hallicrafters. There numerous other electronics com nies including Wells-Gardn Stewart-Warner and the Hawtho Works of Western Electric.

Chicago is also headquarters more than 200 electronic compone manufacturers — among them Muter Company, Oak Manufac ing, Webcor, Chicago Stand Transformer, National Video, Sh Brothers, Standard Coil, Ameri Phenolic, Oxford Electric, and Ra Industries.

Weapons Systems

A substantial proportion of tod products and services, Mr. Gal points out, are advanced milit weapons systems. Defense proc tion, he added, calls for some persal and a decentralization manufacturing activities.

E. F. McDonald, Jr., presiden Zenith Radio Corporation, started Zenith in a kitchen works shortly after serving in the Navy commander in World War I, e sions "fantastic progress" for industry in the decade ahead.

"The Chicago area will conti to maintain its leading position," predicts. "One reason, of course our excellent geographical locat More than that we have in this a great mass of research and pro tion know-how — thousands of w ers with specialized skills and pl of aggressive, creative, pionee and business brains."

Commander McDonald's comp has blazed the trail toward the a tion of subscription TV, which yet to be approved or rejected by Federal Communications Com sion. He has long held that subsc tion TV will enable every receiver to become a little home ater which would enormously

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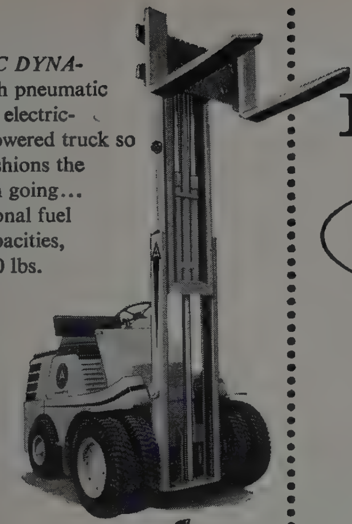
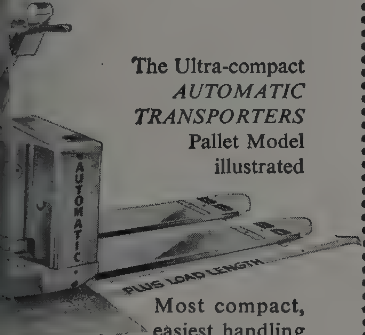
)MATIC DYNA-
IVE with pneumatic
he only electric-
, gas powered truck so
ed. Cushions the
n rough going...
exceptional fuel
my. Capacities,
nd 6000 lbs.



erful tractor with typical *DYNA-
VE* ruggedness, efficiency and
ng economy; draw-bar pull, 600
0 lbs....load capacity, 35,000 to
 lbs.



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pacities. Extra-compact stacker
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hance the boxoffice for new motion pictures, Broadway plays, great musical events, sports spectacles and a variety of other attractions not available to the present form of television.

"And in the field of educational television," he says, "subscription TV will be of tremendous importance. Out of the 257 educational channels allocated by the FCC, only 24 are in use and most of these stations are operating on short hours. It is perfectly logical and in keeping with academic tradition for people to pay tuition for educational courses. Witness the thousands of persons who are taking night courses at Northwestern University, the Central Y.M.C.A. and elsewhere. By the sale of a few hours a week of formal education to the thousands of people who are anxious to secure the credits, subscription TV could very easily finance a long daily operating schedule for educational TV stations. Subscription TV could well be utilized by schools of medicine and dentistry . . . to enable doctors and dentists to keep abreast of the latest developments in their fields.

Trans-Atlantic television would
possible soon, perhaps today, "if
had the money to pay for it," C
mander McDonald says. "The mo
may well come from subscription
The time will come when the
Scala Opera, the Oberammer
Passion Play and other great ev
in Europe will be available for a
cents per person in the Un
States."

One difficulty in estimating
future of electronics lies in the
that it is ever more involved
other developments and industri
the electrical industry, nuclear e
gy, air power, missiles, and the
quest of space, to mention just a

Nucleonics Laboratory

Last fall, Admiral Corpora
headed by Ross D. Siragusa, on
the big three in Chicago, op
what it calls a nucleonics labor
near its main Chicago plant w
in association with the United S
Air Force, it is conducting a t
year project. In this laboratory i
installed the nation's most pow
cobalt radiation source to study
ation damage to electronic co
nents. The cobalt is used to su
components, such as tubes, resi
condensers, and coils, to gamm
diation and to ascertain its e
on them. The cobalt source, rat
20,000 curies, dwarfs the installa
used at medical centers for the
ment of cancer. The cobalt is h
in a 12 by 14 foot test chamber
41 inch walls of magnetite iro
ered with a steel "skin." It con
a 36 inch thick glass window th
which a technician operating re
control manipulators can vie
chamber's interior. The compo
tested are first "cooked" for six
in nuclear reactors at Argonn
search Laboratory at Lemont a
the Atomic Energy Commissi
tablishment at Arco, Ida.

Admiral also has pioneered
battery research. Last year it br
out the sun-powered transistor
receiver and this spring it un
the solar powered radio-phono
Sunless days create no special
lem for the 48 cell solar b
because it can be activated b
floodlights held about three fe
tant. The solar cells, about t
of a half dollar, float in a thin
of oil to reduce light reflectio
con is the basic element whic

ASKANIA REGULATOR COMPANY

In this utility power plant, Askania controls regulate multi-fuel ratios, combustion, pressure and draft.

Key Component in the field of automation...

The Askania "JET PIPE RELAY"...

For the regulation of:

PRESSURE • FLOW • COMBUSTION • EDGE POSITION

The heart of all ASKANIA controls is the famous "jet pipe relay" which makes possible the development of a powerful force from a minute signal. Its basic simplicity, ruggedness and low maintenance make the jet pipe control ideal for industrial applications.

For example, (1) a low pressure air input signal measures the fluctuation of the edge position of a moving strip of steel; (2) that signal is developed by the jet pipe relay into a corrective force powerful enough to move the coil and coiling stand (weighing hundreds of tons) which handle the steel strip—thus maintaining an *even edge* on the coil as it is wound.

Similarly, other types of input, electrical, pneumatic and mechanical, can be applied to the jet pipe relay for the control of other industrial operations and processes.

The ASKANIA REGULATOR COMPANY offers a real challenge to the engineer contemplating future employment. This company is a leader in the manufacture and application of Hydraulic and Electro-Hydraulic Controls and Servos which are used in the production of steel, gas, atomic energy, glass, paper, textiles, petroleum products, etc.

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light directly into electrical
y.
e new sunpowered combination
es a printed circuit radio and
amplifier with seven tran-
s instead of tubes. It is not yet
e market. However, the sun-
red transistor radio is being
the set for around $70 and the
ne sun power pack for $185.
s millionaires, who have both
n and the money, are coming
rd to try it. Further experi-
and refinements are expected
uce greatly the cost of the solar
pack.
miral spent years of research on
dar speed meter which is now
ng wide acceptance by state,
y and municipal traffic authori-
n their fight against speeders.
raffic use this radar meter is
able for any speed from 25
up. Admiral has developed a
ole radarscope, weighing only
unds, which was used during
training by the Kansas City
tics to check the speed of their
rs. Manager Lou Boudreau re-
l that the radarscope now de-
nes accurately the exact speed
ball pitched, which heretofore
be guessed.

Registers Speed

e radarscope is set up either be-
or beside the catcher. When a
pitched, a beam travelling the
of light, 186,000 miles per sec-
is transmitted from the radar
d reflected simultaneously from
oving ball back to its antenna.
ighest speed of the ball is reg-
l in a fraction of a second on a
alibrated in miles per hour up
). When a ball is batted the
also can calculate its going
speed. While this may not be
olutionary or even important
pment, it is one more reflection
tremendous versatility of elec-
s. It is just one more example
imagination and let's try it
of the visionaries of electronics
will cause it to flourish in the
.

nk W. Mansfield, research ex-
or Sylvania Products, recently
the question whether Wall
had over-glamorized elec-
.

th this I would quarrel vio-
" he said. "It seems to me to
possible to over-glamorize either its growth or the opportunity for the future. . . . In just about every phase of American life, electronic applications are playing an increasingly important part in making living better and more rewarding. . . . From our present knowledge of the future of electronics it appears that no fantastic story we could possibly make up will surpass what lies over the horizon."

The future of radio and television for Chicago, which has been a pace setter in broadcasting since 1921, looks bright. Certainly the hopes of the broadcasting leaders are high. WBBM-CBS recently moved into the biggest and costliest radio-TV plant under one roof outside of Hollywood. The old Chicago Arena has been entirely rebuilt at a cost of more than $5,000,000.

Meanwhile, WGN, Inc., which includes W-G-N and WGN-TV, has been re-invigorated under the guidance of Ward Quaal, its youthful general manager and vice president. Business is the best on W-G-N that it has been in its total of 32 years of operation — and this despite the "in-

Direct ship-to-John I. Hay barge cargo transfer

Well, it will be when the St. Lawrence Seaway is completed. Point is that vastly more cargo will reach Chicago by water. But then what?

We at The John I. Hay Company (barge line you see) would like to point out there is no reason to dissipate the savings of water shipping *to* Chicago with a ship-to-dock to overland carrier operation *from* Chicago inland. Instead, your shipment can be transferred directly from ocean vessel to our barges and then carried inland or south all the way to the Gulf.

Incidentally, there are also many "landbound" cities in the midwest and near-west that can be most economically reached by barge and short overland haul. If you have questions regarding any phase of waterway shipping, we shall be pleased to hear from you. There is no obligation for assistance we might be able to give you in organizing to take advantage of water shipping.

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roads" made on radio by television.

Quaal, H. Leslie Atlass, head of &CBS; Jules Herbuveaux, vice president in charge of NBC operations here, and Sterling Quinlan, vice president of WBKB, the ABC-TV station, all are placing increased emphasis on "live" programming. WBKB has moved into new $4,500,000 quarters in the State Lake building. And while none of them expect to rival New York or Hollywood as a TV production center, they do see bright years ahead in the video field. WNBQ, under Herbuveaux's leadership, became the first station in the nation to originate all local "live" studio programs in color. Recently it created Club 60, a full hour's "live" (daily) musical and variety hour which is fed to the NBC network.

Meanwhile, radio operations have grown and are expected to continue to flower in Chicago. WIND was recently sold to the Westinghouse Broadcasting corporation for $5,500,000, believed to be a record price for a station in its power category. Metropolitan Chicago with 2,500,000 TV sets, more than it has either in bathtubs or telephones, expects to maintain its strong position in television in the decade ahead.

Medical Center

(Continued from page 51)

ments totalling $34,850,000 for seven hospitals, mostly in the suburban area, are either in the planning or actual construction stages.

Illustrative of this expansion is the $6 million project at Wesley Memorial Hospital. This will be a five story, L-shaped annex pavilion, along with a 16 story tower, all tied into the present plant. The five story addition is being devoted exclusively to enlarged patient services, such as increased X-ray facilities, more operating rooms, additional space to triple present psychiatric accommodations, and recovery rooms.

Modern hospitals are installing recovery rooms to which patients can be taken immediately after surg
There they can be given closest
tention and care during the
critical period of their hospital
Such rooms are equipped with
vidual oxygen outlets, apparatus
intravenous feeding, blood tran
sion equipment, and other nee
devices and drugs to hasten
valescence. All this saves time
doctors and nurses, obviates the
for dashing from room to room,
assures excellent technical supe
sion until the patient can be mo
safely to his own bed.

In Wesley's new tower, am
other facilities, the two top
will contain added air conditio
quarters for patients. The tower
will house offices for staff doc
Funds for constructing these o
will come from bank loans ra
than public contributions, and
be self-liquidating from rental
comes.

Another innovation in the W
expansion will be a laboratory
the use of radio-isotopes in
ment and research. While W
in the past has had access to
new atomic tools, they have
limited in their availability be
Wesley had to depend on N
western University medical scho
its source. Wesley is one of N
western's teaching hospitals.

Ten-Year Program

Another outstanding examp
Chicago's expansion in the ho
and medical research fields i
ambitious ten-year construction
gram now forging ahead at Mi
Reese hospital. Much of this
already has been completed.
Michael Reese undertaking emb
both a slum clearance program
many projects for enlarged me
care and research.

Under construction is the
mings Research pavilion, one
eral recent buildings to be e
at the Michael Reese Medical C
The new pavilion will house
patient laboratories, as well a
departments of the Michael
Research Institute, world fam
its development of an effective
ess for the manufacture of an
polio vaccine by ultraviolet i
tion. This procedure is so eff
that it has been adopted on a
ing basis by at least one nati
known pharamaceutical house

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ncorporating the Michael Reese nique with the method devised Dr. Jonas E. Salk of the Univer- of Pittsburgh for killing polio s strains with formaldehyde.

he same ultraviolet technique is being employed successfully boost the potency of other vac- s, including the one against es. Much of this work was ked by the late Dr. Sidney O. nson, who died before he could ve world acclaim for his accom- ments.

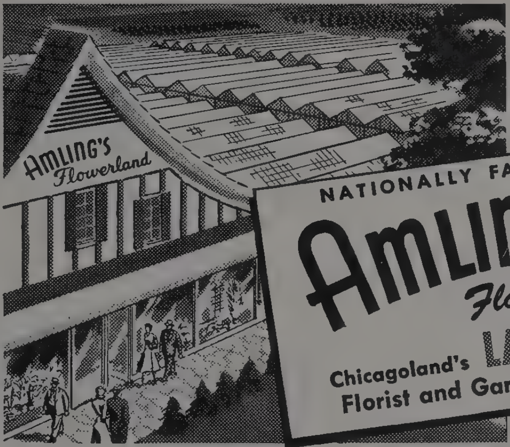
so to be housed in the pavilion be the group now making stud- on human reproduction. Their nate findings are aimed at mak- it possible for infertile married ples to become parents.

Covers Wide Area

his, of course, is but a bare out- of the Michael Reese research ram, which also covers a wide in heart disease under the di- on of Dr. Louis Katz, radiation apy under Dr. Erich M. Uhl- n, and cancer studies directed r. Albert Tannenbaum, a world ority on the possible relation- between cancer and diet.

ll another major expansion ng Chicago's hospitals is that being effected through the re- merger of St. Luke's and Presby- n. This consolidation ultimately give Chicago the largest volun- hospital in the United States. ough the corporate merger has completed, the physical consoli- n, which includes moving St. 's facilities to the Presbyterian n the west side medical center, s completion of a major build- rogram already underway there. ddition to a new school of nurs- nd a new professional building, onstruction program includes sions for 450 more beds, ex- ded research facilities, and an atient clinic, for an estimated of $18.5 million.

e merger will bring top mem- of the two professional staffs her to form a highly efficient ing team in concerted research, h includes studies long under- at Presbyterian for the trans- ation of human organs. Re- ers have long sought to attain tter goal but have been balked st such efforts by a factor known ue antagonism existing between



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CHICAGO AND NORTH WESTERN RAILWAY SYSTEM

donor and recipient, except in some instances of identical twins. The studies are aimed at finding possible methods for overcoming this inherent incompatibility, thus making possible transplantations which Dr. Paul Dudley White, medical consultant to President Eisenhower, said some day conceivably might become possible even with the human heart.

Envisioned in this project is not only the transplant of major organs from one unrelated human to another, but also the development of a method for successfully storing such body parts against the time of need in freezer compartments like those used in blood, bone, skin and blood vessel banks.

In a discussion of local hospital needs and plans for expansion to meet those requirements, James R. Gersonde, executive director of the Chicago Hospital Council, reported the city now has 15,573 beds, while a recent study conducted under the auspices of the Illinois State Survey and Plan for the Construction of Hospitals, shows that right now Chicago needs 15,750 beds. This survey, he said, bases its bed requirement estimate on a rule-of-thumb formula calling for 4.5 beds per 1,000 population, and does not give a true picture. Thousands of nonresidents, Mr. Gersonde said, come to Chicago annually as patients from all parts of the middle west, from other parts of the nation, and from foreign countries, to obtain the high quality medical care available here. Such services, particularly in specialized cases, quite frequently cannot be obtained in their own communities. This influx adds to the demand for Chicago hospital beds and creates a much greater need for such accommodations than the survey would seem to indicate, Mr. Gersonde explained.

Now Available Here

Other observers, in commenting on this same situation, recalled that not too long ago many Chicagoans went elsewhere, even to Europe, seeking medical care now available here in its most efficient form. Rare today, however, is the Chicagoan who thinks it necessary to make an out-of-city trip for medical advice and tre ment.

Mr. Gersonde explained that t arbitrary rule of 4.5 beds per 1,0 population handicaps Chicago b cause that ratio already has be achieved by local hospitals. Th he said, even if Chicago hospit wish to participate, the unrealis bed-ratio rule makes them ineligil to receive subsidy funds under t federal Hill-Burton Act for new co struction or expansion. Efforts a being made, Mr. Gersonde said, have the inequities of this arbitra rule modified. In the suburban ar adjacent to Chicago, where the effe of increased population already ha been felt, some communities are el ible for Hill-Burton aid.

Mr. Gersonde said the followi are among the new building ad tions and modernization progra announced by hospitals in Chicag metropolitan area:

Bethany Methodist Hospital and Ho 5015 N. Paulina St.—60 bed additio estimated cost $500,000.
Chicago Wesley Memorial Hospital, 250 Superior St.—New addition, including proximately 100 more beds, doctors' fices, increased facilities—$7,293,319.

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A. V. Marxen, *President*

ton Hospital, 2550 Ridge Ave., Evans- —New south wing, new emergency m, 100 added beds, 50 bassinets — 00,000.

Cross Hospital, 2700 W. 69th St.— lition of 150 beds and service facilities ,000,000.

s Memorial Hospital, Harvey—Plan- g a 100 bed addition—$2,190,000.

A. Weiss Memorial Hospital, 4546 rine Dr.—Opening the 5th and 6th rs, an additional 70 beds and a 7th r addition for obstetrical department ,500,000.

el Reese Hospital, 2912 S. Ellis Ave.— v Ruth Cummings research pavilion the Berman and Hannah Friend me- rial pavilion—$810,000.

t Sinai Hospital, 2750 W. 15th Pl.— idence hall—$750,000.

egian-American Hospital, 1044 N. Fran- o. — five story extension — $1,000,000.

ant Memorial Hospital, 303 E. Su- or St.—East pavilion adding 100 beds n new teaching, treatment and diag- ic facilities—$3,000,000.

terian-St. Luke's Hospital, 1753 W. gress St. — New pavilion, 450 more s, out-patient clinic, addition to nurs- school, and new professional building 8,500,000.

nd Community Hospital, 45 W. 111th -Addition of 75 beds plus expansion service facilities—$2,000,000.

Bernard's Hospital, 6337 S. Harvard .—Additions for new food service, new g for added beds and expanded diag- ic services—$2,000,000.

James Hospital, Chicago Heights— lition of 100 beds, out-patient and iatric departments. Remodeled obstet- l and surgical departments — From 00,000 to $2,000,000.

University of Chicago Clinics (Lying-In Hospital), 950 W. 59th St.—Remodeling and expansion of hospital and research facilities—$3,300,000.

West Suburban Hospital, Oak Park—Rehabilitation and expansion of hospital, plus addition to school of nursing—$3,000,000.

In addition, the following projects represent new area hospitals, some of which are still in the planning stage, while others actually have been started:

Christ Community Hospital (Evangelical Hospital Association), Oak Park—General, 286 beds—estimated cost $4,000,000.

Illinois Psychiatric Institute State Hospital, Roosevelt Rd., Taylor and Paulina Sts.—Psychiatric, 400 beds. Services of training, treatment and research (now building)—$8,000,000.

Leyden Community Hospital, Leyden Township—General, 200 beds—$4,300,000.

Lutheran Community Hospital (Lutheran Deaconess Hospital), Park Ridge—General, 200 beds—$4,300,000.

Old Orchard Community Hospital Center, Glenview — General, approximately 100 beds—$1,750,000.

Northwest Community Hospital — General, 100 expandable to 300 beds—$1,800,000.

Saint Joseph's Hospital, Waukegan Rd., Glenview (present hospital at 2100 W. Burling St., Chicago)—General, 350 beds —$10,000,000.

State Neuropsychiatric Chronic Diseases Hospital—Neuropsychiatric, 2,000 beds.

Tinley Park State Hospital, Tinley Park.

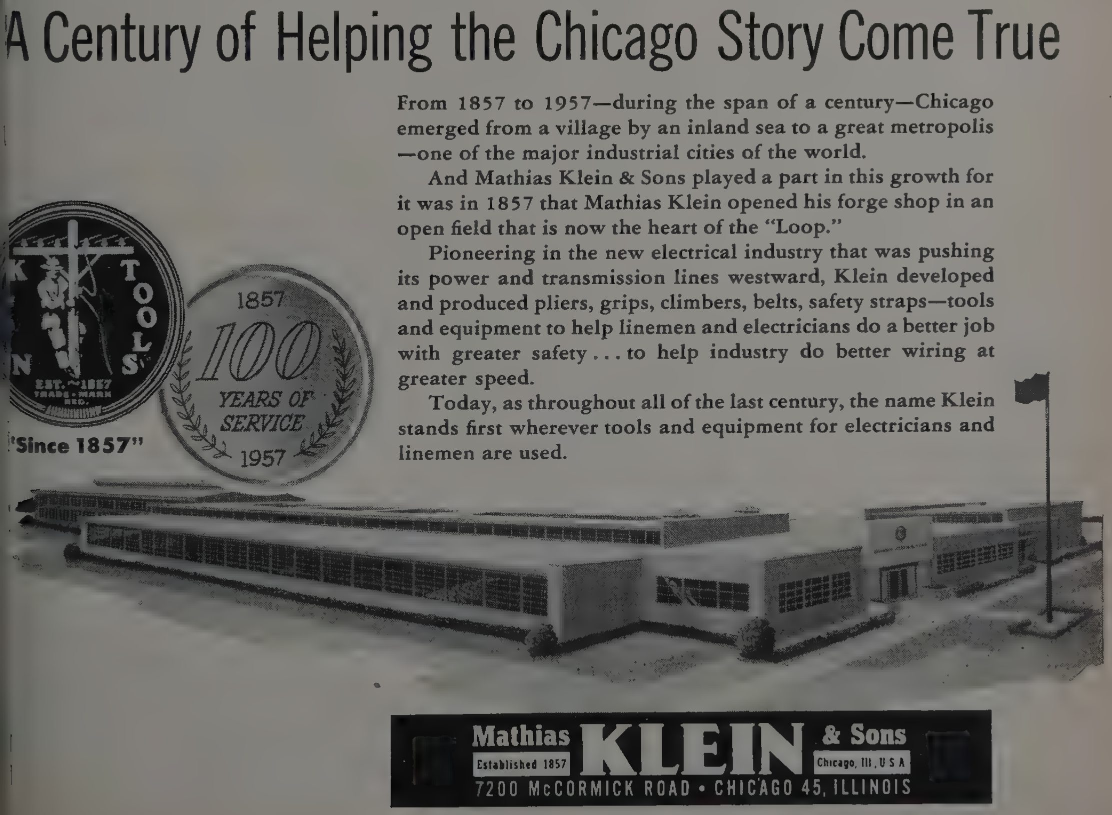
Perhaps the principal reason why Chicago's hospitals are able to render such outstanding service is that they are bulwarked by a superlative kind of research teaching fostered by the city's five medical schools, health educators say.

The five schools, all in the upper brackets of medical education, are: Chicago Medical school, Stritch School of Medicine of Loyola University, Northwestern University medical school, University of Illinois college of medicine, and the division of biological sciences constituting the medical school of the University of Chicago.

Full-Time Professors

At this point it should be mentioned that the U. of C. operates the nation's only medical school whose faculty members are all full-time professors. In addition to teaching, these doctors also supervise all treatment given patients admitted to the university's clinics, of which Billings hospital is a unit.

Because of its unique medical teaching facilities and the diversified research carried on by the city's hospitals, Chicago is able to attract the cream of the nation's medical school



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graduates for training as interns or as hospital residents.

It is estimated that at least 1,000 medical investigators are now engaged in the Chicago area on hundreds of research projects costing upward of $50 million yearly. Funds spent on such research probably exceed that sum by a wide margin since some of the studies are privately financed, and hence undisclosed.

Typical of the research undertakings are the numerous studies launched against various phases of the cancer problem, the use of high energy radiation in the treatment of malignancy, and investigations aimed at finding possible cures for a host of other diseases including rheumatic heart disease and arthritis.

Surgical Advances

Surgical advances pioneered by Chicago doctors have made this city a home and haven for victims of various kinds of heart abnormalities. At Children's Memorial Hospital, scores of children, for example, have been snatched from death threatened by a congenital condition which turned them into so-called "Blue Babies," because of inadequate blood circulation to their lungs.

The city boasts cobalt bombs for treating cancer at several medical establishments, including Veterans' Research hospital, the Research and Educational Hospitals of the University of Illinois, County hospital and the Argonne Cancer Research Hospital operated by the University of Chicago for the Atomic Energy Commission on the university's campus.

In addition, the U. of I. as well as the U. of C. each possess "atom smashing" machines called betatrons, used in the treatment of cancer, while a different kind of atomic device, known as a linear accelerator, is in use at Michael Reese hospital. Also available for the deep bombardment of cancer tissues is still another device called a Van de Graff accelerator, included among cancer fighting tools at the U. of C.

Annual expenditures for medical research and treatment at the University of Chicago exceed $7.5 million of which more than $4.5 million is used for the study of disease. The school also has 20 basic science departments that contribute to the investigations of its clinical and research center housed in nine hospitals comprising the universit
clinics.

Elsewhere on the city's medi
front, Loyola's Stritch school of me
cine will move from present quart
at 706 Wolcott street, to a new mu
million dollar structure on Chicag
northwest side. The site, recen
acquired by the university, is bou
ed by Carpenter street, Dowagiac
Iona avenues, and the Skokie
limits.

The proposed medical sch
building and a new Mercy hospi
a Loyola announcement said,
form the nucleus of what is expec
to develop into an important m
cal center serving the fast grow
population in the new area.

Chicago Medical school is p
ning a new $6 million plant
which land has been set aside in
west side medical center.

While the city's medical sch
are expanding, Chicago also is p
ning to meet another important c
lenge — how to educate the doc
of the future. The problem is
the men or women taking mec
courses must spend from nine t
years before they can enter prac
This points to a need, it was em
sized at a recent conference of m
cal educators at the Universit
Chicago, to devise some kinds of
riculum which can reduce the
time element, while providing
instruction in the rapidly develo
branches of medicine.

New Curriculum

Northwestern's medical schoo
introduced a new curriculum w
will give students an opportuni
attempt research on their own.
cation quarter in the third year
an open quarter in the fourth
now make it possible for studen
spend six continuous months
research project. Research faci
at the school were given tremen
expansion two years ago by the
tion of the new Morton Res
Building.

These represent but a few
lights in the medical research
education picture here. Another
cipal development is Chicago's
west side medical center district
building on a 305 acre tract two
west of the Loop. Conceived
garden of health, this vast u
taking is being brought to fru
under authority of the Illinois
lature. Its development is di

water as nature made it is a big part of our business

The Midwest, like many other parts of the country, suffers from water that ranges from medium hard to extremely hard. As most people know, hard water has many disadvantages. Soft water makes life much more pleasant.

With soft water, soap dissolves more easily. Clothes wash cleaner, and there's no mineral soap scum to stay in the clothes. Skin is softer. Dishes wash cleaner. Plumbing lasts longer, because there's no "lime" to clog water heaters and pipes and other equipment.

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Service tank, left, and several of the latest type of water softeners.

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by a seven-man commission headed by Dr. Walter H. Theobald, president. Buildings recently completed and now operating within the reservation represent approximately $53 million worth of construction costs. Another $25 million of structures are now being erected, and $100 million worth of new structures and equipment is being planned. It is expected that when the ultimate plan is completed, total investments within the area will exceed $350 million.

Probably one of the most astounding things to outsiders either in or out of the medical or research professions, is the little known fact that two of five American medical school graduates come to Chicago at sometime in their careers either to attend conventions or for some type of special training.

In this connection, Chicago's position at the zenith of the medical and scientific world is emphasized by the fact that it is host to more medical and allied conventions than any other city in the United States. It also is headquarters for the American Medical Association, the American Dental Association, the American Hospital Association, the American College of Surgeons and many other medical specialty groups. These organizations have congregated here as by some common instinct and lend the voice of authority to what is done locally for medical advancement.

Medical science has undergone vast transformations in the lifetime of all of us, as each individual can att from his own experience. What w happen in the next 20 years? Scie tists say that wonderful things greater health and the conquest disease are destined for discove And when they are announced, doubtedly many such blessings be disclosed under a Chicago da line, researchers predict.

Petroleum

(Continued from page 90)

that coats chamber walls, and they gradually accumulate during the first several thousand miles a new car is driven. Since they form on the sides of the combustion chamber and reduce its volume, the effect is the same as an increase in compression ratio. As engines are improved, this effect grows. The reason is: cubic area of the combustion chamber is smaller to begin with; thus, a given amount of deposit reduces the area and increases temperature and pressure by a large percentage. In the process, the problem of controlling knock is compounded.

Petroleum industry engineers are attacking the combustion cham problem on three major fronts. approach is higher octane gasoli The higher the octane, the grea is the gasoline's ability to withsta the effects of temperature and p sure buildup in the combusti chamber while the piston is mov upward. Hence, a higher octane is less likely to start burning bef the spark plug ignites it. If com tion can be controlled, maxim power is obtained.

Besides increasing octanes, pe leum researchers are developing oline additives designed to overc the problems caused by higher c

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ssion ratios. Typical examples are
ll's "TCP" and Sinclair's "X-
emical." The other major petro-
m refiners have similar substances.
h is reported to produce major
uctions in knock, sparkplug foul-
, and impurity build-up in the
nbustion chamber.

The third approach to the prob-
s posed by the steadily shrinking
nbustion chamber is better motor
During the past several years
st companies have been making
se oils out of lighter, i.e. "cleaner,"
de fractions, thus reducing the
ount of impurities that can cause
uble. The logical conclusion of
s development, impurity-free oil,
still in the future. It will be a
thetic, containing materials found
sently in such seemingly incon-
ous products as coconuts, anti-
ze, sand, and fertilizer.

ynthetic oils are now being used
jet aircraft. A number of prob-
s remain to be worked out before
thetics can enter the automobile
nkcase, the most important of
ich is their fantastically high price.
wever, they offer some truly amaz-
possibilities. On one test the use
synthetic oil in a late model stock car reduced combustion chamber deposits during the first 5,000 miles the vehicle was driven by more than 50 per cent.

The increase in horsepower that accompanies the increase in compression ratio means the engine doesn't have to work as hard to move the car at a given speed. This can best be illustrated by a few figures. Twenty years ago, when automobiles had a rating of around 75 h.p., it required approximately 15 h.p., or 20 per cent of the total, to make the car travel 25 miles an hour. Today's automobiles possess anywhere from 200 to 350 h.p. It still takes 15 h.p. to get the speedometer needle up to 25 miles an hour, but this is only four to seven per cent of capacity.

Oil Impurities

Build-up of oil impurities on moving parts of the engine both inside and outside the combustion chamber is much greater at low engine temperatures when the engine isn't working hard. In effect, the increase in horsepower has tended to reduce the average operating temperature of the typical automobile engine in city traffic, thus increasing the amount of impurity build-up.

Indicative of progress in the battle against engine fouling outside the combustion chamber are the many oil additives developed in recent years. Among them is a "polymeric detergent" which has been evaluated by Pure Oil Company at its laboratories in Crystal Lake, Ill. This additive, by providing a greater level of suspension action, reduces impurity deposit at low engine temperatures.

Cities Service, which has a 60,000 barrel-a-day refinery here, has also contributed to the development of oil additives. One of the firm's research officials declares: "Detergents used in today's motor oil do a better cleaning job than detergents used as little as three years ago, despite the fact that engine horsepower of new models has more than doubled during this period."

Despite this progress the researcher's never-ending job of finding still better motor oils and additives continues. One problem receiving a lot of attention is the development of better anti-wear additives that will cut down the erosion caused by metal

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parts rubbing against each other. O
by itself can't do the trick becaus
of the pressures involved. The par
rub against each other so hard tha
they "squeeze" the oil off the su
faces.

Present additives counteract th
tendency by "plating" the metal wit
a super-tough coating. But thes
"plating" additives sometimes ten
to increase combustion chamber d
posits. Petroleum scientists are no
trying to develop an "ashless" add
tive that provides the same prote
tion without adding contaminan
to the crankcase.

Wax-Free Oil

Another product the oil industr
would like to have is an oil tha
doesn't turn into molasses at ve
low temperatures nor become wate
at high temperatures. Standard
Indiana recently brought that go
nearer by developing a new wax-fr
oil. Such oils were available pr
viously, but the supply was limite
because crude stocks which we
wax-free to begin with had to
used. Standard scientists found th
urea would remove the wax
other stocks. The firm is now pr
ducing oil that remains effecti
down to –70 deg. F, from distillat
which, previously, were useless
such temperatures. A plant for ma
ufacturing ten million gallons
wax-free oil a year has been built
Standard's Whiting refinery.

When you mention the word
to the average motorist, he usual
thinks of it as the stuff that fills
crankcase. Actually, oil is hiding
over his car. The plastic in his das
board, the synthetic lacquer in
paint job and the synthetic rubb
in his tires are just a few of the co
ponents that came from chemic
which originally gushed from an
well.

So many advances are being ma
in the petrochemical industry tod
that it would take a book to det
them fully. However, you can obta
an idea of what's going on by taki
a quick look at some of the chang
likely to occur in paint.

A major goal of the paint indus
for a long time has been a water b
coating that could be applied to
exterior of a house. Such a pa
would be easier to use, thus openi
up an even bigger do-it-yours
market.

esent water base paints, devel- with a big helping hand from petroleum industry, are fine in- r coatings, but they can't stand o the weather. There are syn- cs available, currently used for istrial applications, tough gh to withstand mother nature. ever, they must be cured in high perature ovens. Unless someone igure out a way to move a bun- w into one of these ovens eco- ically, new kinds of synthetics have to be developed before r base paints can be applied to outside of the house.

similar need exists with respect ndustrial coatings, particularly acquers that are applied to such s as automobiles. As much as the cost of these lacquers is esented by the solvents that must ised to keep the coating free- ing long enough so that it can pplied with a spray gun. After- l, when the paint job dries, this stment disappears, literally, into air; for, in curing, the solvent orates. Lacquer manufacturers well as producers of other in- rial coatings—presently are look- for a synthetic that doesn't need vent.

Answers Somewhere

hat synthetics will solve these problems, and when they will be loped, is anybody's guess. But, to e one oilman, "it's a better than bet that the answers are lying ewhere inside an oil well right ."

he fact that the oil industry is lying steadily growing percent- of three basic chemicals needed these and other products is of importance to their future im- ement. The chemicals are: ben- , toluene, and xylene. For years came from coke. But production to be pegged to steel output, h might or might not correspond he demand for the three chemi- Using crude oil as the source, story is completely different. The ly is unlimited for all practical poses. If more is needed, oilmen borrow crude fractions now go- into less-profitable products, lual oil for example.

effect, the switch means that hree chemicals can be suppied at uch more stable price. Thus, the ntive to explore new uses is ply increased. The paint industry is among the major beneficiaries of this situation. For, among the products obtained from xylene is a substance known as isophthalic acid, previously available only in laboratory quantities. This acid offers a hope of supplying one of the raw materials for the new industrial coatings that are now being sought so eagerly.

Among the oil firms that have contributed to an increased supply of isophthalic acid is Standard of Indiana. The firm has announced plans to build a plant for processing this and other aromatic chemicals which will cost in excess of $10 million.

Standard's decision to build its new plant "somewhere in the Middle West" came while the company was in the midst of a multimillion-dollar expansion of its research facilities. These are two of many such projects built or announced here during the past several months.

Not long ago, Standard of New Jersey purchased two local service station chains, Oklahoma and Perfect Power, which, together, have 124 outlets in the Chicago area. New Jersey Standard has also acquired the 140-station Pate Oil Company in Milwaukee.

Sinclair, meanwhile, has just completed a new hydrofinishing unit at its East Chicago refinery, to produce superior lubricating oils and has opened a new pipeline terminal near Mt. Prospect.

New Facilities

Socony-Mobil, which annually processes some 12 million barrels of petroleum into gasoline, distillates, and heavier fuel in East Chicago, recently finished building two new refining facilities there—a Sovaformer and an Alkylation unit. Shell has built a new warehouse, one of the largest ever constructed by the firm, for storage of a variety of oil products at its Argo, Ill., terminal. And Texaco is constructing a new ammonia plant with a daily capacity of 180 tons at its Lockport refinery.

Pure has construction of a multimillion-dollar catalytic reforming unit under way at its Lemont refinery, and is also participating in the construction of the Tecumseh pipe-

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line, a 20-inch, crude oil line that will run from East Chicago to Cygnet, Ohio.

An official of New Jersey Standard gave one good reason for this ferment of expansion. Asked why his firm had moved into the Midwest, he answered: "A major reason is that population growth of the East Coast has become fairly static. The population of Chicago and the Midwest, by comparison, is increasing at a much greater rate."

His words are backed up by a recent Census Bureau report: At the beginning of 1950 the population of the three middle Atlantic states (N.Y., Pa., N.J.) wasn't far behind that of the five east north central states (Ill., Mich., Ind., O., Wis.). The figures: 30.163 million for the former area, 30.4 million for the latter. By July, 1956, however, the Midwest's edge had increased to almost 1.7 million – the east north central states had 34.221 million residents, while the middle Atlantic states had 32.562 million. During the same period, the population lead of the 12 states comprising the north central region of the country over the New England and Middle Atlantic states increased from approximately five million to around seven million.

These figures show graphically which way the Midwest petroleum market is needed. This area already consumes more gasoline, has a higher proportion of car and truck owners, buys more liquefied petroleum gas, and boasts more new construction (a barometer of heating oil sales) than any other area in the country.

Besides population growth and its traditional geographic and transportation advantages, Chicago's importance as a petroleum center should also be increased by the St. Lawrence
Seaway. It has been estimated t
when the Seaway is completed it w
carry some 2,500 ocean-going sh
a year; a substantial percentage
them will dock in the Chicago ar
which should increase the market
bunker oil appreciably. The Seaw
and related improvements to the C
Sag channel and Calumet harb
also will draw in a number of n
industrial plants. The local pe
leum market will benefit from t
industrial influx through increa
sales of plant fuel oils.

Also, the Seaway will provid
cheap all-water route to the r
markets crowded along the E
Coast.

Research

(Continued from page 71)

the invention of new types of nuclear apparatus. For example, to further research on use of gamma rays for food sterilization, new sources for very intense gamma rays will be sought.

New sources of neutrons. Existing or known types of reactors are both bulky and expensive to build. At-
tempts will be made to produce n
trons in new ways, with the hope
ultimately providing industry w
copious and less expensive supp
of neutrons.

New methods for detecting ra
tion. To improve radiation detect
methods, either the sources must

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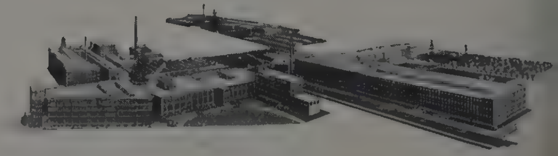

e more intense, or the detection
ces more sensitive. Armour will
entrate on the latter.

adiation effects on chemicals —
ivestigate the combined effect of
temperature and high-energy
ation on selected chemicals.

adiation effects on alloys — to in-
igate new ways of creating
ugh radiation certain alloys
h do not seem to be produced
rdinary metallurgical methods.

adiation treatment processes —
nvestigate and perhaps produce
cally active solids, such as phos-
rs, and cold-light sources, such as
rescent lighting.

adiation effects on biological sys-
s. An investigation to seek protec-
s for biological organisms against
ation. This project holds the
e of finding chemical substances
ch can be introduced into the
nisms, perhaps ultimately into
ian beings, which will increase
stance to radiation.

hese and other projects involving
reactor grew out of agreement
veen Armour and the sponsoring
panies that the work should be
ntially fundamental in character,
that the reactor should not be used simply as a test machine. Dr. Leonard Reiffel, reactor program director, emphasizes that there will be considerable specificity in the program, but "of a healthy sort and not such as to shackle the imaginations of the scientists working on the program."

"Team" Approach

The "team" approach, drawing scientists from all of the Foundation's nine divisions and many departments, enhances the prospects for numerous ideas of practical application. Moreover, the program involves use of the Armour staff as consultants and teachers for the design of nuclear facilities within the participating companies and to train company personnel in nuclear techniques.

Among the sponsors are nine Midwest and 11 Chicago-area firms, including Armour and Company, Borg-Warner Corporation, Elgin National Watch Company, General Portland Cement Company, Illinois Tool Works, Inland Steel Company, Nuclear Instruments and Chemical Corporation, Ohmite Manufacturing Company, The Richardson Company, Universal Oil Products Company and Victor Chemical Works.

The secrets locked in the structures of metals are being probed in another long range atomic research project at Northwestern University. Using the Van de Graaff accelerator, designed and built at the university, high-energy electrons bombard samples of iron, cobalt, nickel, silver, copper and gold, thus displacing their molecular structures and producing changes in their physical properties. By studying the changes produced under controlled conditions, much is expected to be revealed concerning the relationship between the crystalline structures and the physical properties of the metals. Ultimately, this basic research will contribute to better understanding of such characteristics of metals as hardness, ability to conduct heat and electricity, malleability and tensile strength — all of incalculable value to American industry.

Other nuclear research at Northwestern includes physics department studies of the energy levels of atomic nuclei; studies on the disposal of radioactive wastes to prevent pollution of streams and waterways, con-

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ducted in the radio-nuclear laboratory at the Technological Institute; development and construction, in cooperation with 14 other Midwest universities, of the world's most powerful "atom smasher"; and a two-year training program, in cooperation with the Atomic Energy Commission, to double the number of nuclear reactor specialists trained annually.

In the development of private atomic power, Commonwealth Edison Company will place in operation in 1960 the nation's largest all-nuclear power plant, a $45 million "boiling water" type of reactor with a capacity of 180,000 kilowatts. Now under construction at Dresden Heights, 47 miles southwest of Chicago, the plant will be fueled with some 60 tons of uranium, enough to last six years at full efficiency and supply the electricity needs of a city of 250,000 population. Willis Gale, Commonwealth chairman, has pointed out that a conventional plant of this size would burn 1,800 tons of coal per day.

Commonwealth's plant is being built on the same principles as the
nation's first nuclear power pla
the $5 million "boiling water" re
tor dedicated earlier this year
Argonne National Laboratory, t
first of 21 such plants slated for c
struction throughout the count
This experimental plant, with a 5,
kilowatt capacity, supplies abo
three-fourths of Argonne's pov
needs from six tons of uranium, e
mated by Dr. Norman Hilberry, a
ing director, to be sufficient for fr
three to 10 years.

Although the Commonwealth E
son plant will produce power
commercial purposes, $15 million
its cost is being shared by Edison w
seven other power companies and
engineering firm as research and
velopment expense. On the basis
the remaining $30 million inve
ment, the plant will provide electr
ity for ¾ of a cent per kilowatt-ho
or approximately the same as fr
conventional coal-fired plants. Ho
ever, although Commonwealth
taking the biggest step yet towa
commercial nuclear power, Cha
man Gale comments, "I can st
with some assurance that competit
nuclear power is not just around
corner."

Nuclear Power

Dr. Christopher E. Barthel,
assistant director of Armour
search Foundation, estimates th
nuclear power plants will accou
for from 10 to 20 per cent of the el
tric capacity installed between 1
and 1970. "As production costs
down," says Dr. Barthel, "nucl
plants can be expected to take
increasing share of the power gene
tion market." Other estimates
that by 1980 perhaps 20 per cent
the nation's electrical power will
generated from nuclear fuels.

Dr. Barthels points out that
world's reserves of fossil fuels — g
oil and coal — are inadequate, a
that water power is limited in its
plications. This, he feels, is the ba
motivation behind the growth
nuclear energy into America's bigg
industry, from a small governme
appropriation in 1940 to a $12
lion giant today, surpassing the st
and automobile industries. Mo
than 800 companies are using ato
energy by-products in some 1,
plants.

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ts in the Fermi Institute for lear Studies continue to probe atom and its innumerable parts. ne of them puts it, "We can e nuclear fission (e.g., the atom b) and nuclear fusion (e.g., the ogen bomb), but we still do not enough about the reasons why." tute director Samuel Allison is ork on studies of the transforma- of nuclei, which provide valu- data for the design of higher gy machines as well as on the cture of lightweight nuclei. No- Prize winner Harold Urey, dis- rer of heavy hydrogen and vy water," is investigating the ns of the universe. Herbert An- on, the late Enrico Fermi's first rican student, explores the forces ing the atom together. The uni- ty also operates Argonne Lab- ory for the Atomic Energy Com- ion, and many Institute scientists as consultants to the Labora-

"Bubble Chamber"

ne of the more dramatic projects ger Hildebrand's "bubble cham- in which it is possible to view rack of a single nuclear particle through heated liquid hydrogen. er correct temperature and pres- conditions, the particle, in this a meson, will leave a trail of les which lasts only a few mil- hs of a second, but which can hotographed. The behavior of hort-lived particle can then be ed at leisure for important clues its energy and other character-

e of the two American repre- tives on the international com- e for the International Geo- cal Year is the University of go's John A. Simpson, physics ssor and specialist in cosmic The Year, which starts this July), will see over 5,000 scientists 55 nations work together in an sive investigation of the earth ts environment. The first of a man-made satellites will be ned into outer space this fall, om its instruments much will arned about solar radiation, rays, the density of the upper phere, and the mass-distribu- f the earth itself.

n this and other concentrated h during the Year, scientists orward to improved weather forecasting, such as the possibility of advance warnings of earthquakes, tidal waves and volcanic eruptions; better long distance radio communications; an assessment of the potential seafood supply in the oceans; and perhaps even a few more steps toward human exploration of outer space.

The scientists are the first to insist, however, that man is still a long way from space travel. Myriad practical problems remain to be solved before you or even your grandchildren can book passage for a planetary vacation. Among these restraints are the still-unknown capacities of man, his materials and his machines to function under outer space conditions. Here again, Chicago laboratories are helping to explore the answers.

Inland Testing Laboratories, for example, recently designed for the Air Force a stratospheric chamber to simulate conditions at altitudes up to 40 miles for testing fuels, lubricants, machines and materials. Inland has built a larger test chamber, details of which are restricted, for use by Boeing Aircraft in Seattle.

Another Air Force project, conducted at Armour Research Foundation, measures human tolerance of ozone, layers of which will be en-

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The Midwest Division of the Atlantic Companies is already staffed at its headquarters in Chicago by ocean marine insurance experts backed by over a century of experience in the ocean marine field. They are fully prepared to provide for the complete ocean marine insurance requirements of Midwest foreign traders.

The Atlantic Companies salute the City of Chicago and wish it "Fair Winds and Full Cargoes" in the coming years of growth and prosperity.

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countered by pilots when they p
trate the upper atmosphere.
safety levels of ozone and the eff
of ozone toxicity must be establis
for the planning of pilot protecti

Flame ceramics, another Arm
development, protects metals f
the extreme surface heat genera
by the high speeds of rockets
missiles. Most metals suffer high t
perature erosion under extre
speeds, and the flame ceramic c
ing provides resistance to heat, al
sion and chemical attack.
ceramic material, usually a sir
oxide, is fed through a flame to
and sintered in the process. One
portant advantage is that the m
to be coated need not be heated
cessively. Electrically conductive
nonconductive coatings can be u
and they can be impregnated wit
variety of solutions, such as wa
resins and silicones. Flame cera
coatings have shown their value
such other applications as anti-
protection for aircraft parts, coa
for flame equipment, thermal
tection for engine parts, and inc
ing the wear and skid resistanc
metal treads. Continental Coat
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process, which was introduced
mercially early this year and is b
tested by numerous manufactu
for product applications.

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age problem, the "sonic boom
sound shock wave resulting
planes exceed the speed of sour
being sought by Armour's
physics section. Acoustical res
generally has advanced into the
front of modern scientific inq
and in this field, too, the Ch
area offers a large concentrati
educational and industrial res
facilities.

Dr. Howard C. Hardy, acou
consultant and chairman of the
tro-acoustics committee of the
tute of Radio Engineers, attri
the widening interest in aco
and noise control to man's te
logical progress:

"As man controls more ener
devises more potent things to
dle, and in most instances the
duce more noise. Our socie
arriving at the point where w
exceeding tolerable noise leve

tion to scientific efforts to con-
noise, we are beginning to take
lative steps, such as the 'per-
nance code' embodied in Chi-
's proposed zoning revisions, and
xert business controls, such as
e specifications in purchase or-
for new equipment."

r. Hardy, who originated the per-
nance code approach to legisla-
and serves as consultant to many
rnments, including Chicago's,
ts out that such regulation can
a direct bearing on tax reve-
. For example, property owners
e vicinity of the Milwaukee air-
currently are seeking reassess-
t because of the alleged deleteri-
effects of airport noise.

Eliminate Noise

an example of industrial con-
Dr. Hardy cited the foresight
ord Motor Company in design-
ts Chicago aircraft engine plant
iminate noise in the surround-
community. Acoustical design
eded architectural and engineer-
plans, so that noise control was
into the plant. Although noise
e test chambers exceeds 160
bels (normal conversation lies
een 50-75 decibels), it cannot be
at the edge of the plant
nds. Ford also uses United States
um Company's "noise blotters,"
coustosorbers, ingenious alumi-
and-fiber units which can be
d as needed. The Acoustosorber
developed in Gypsum's Chicago
arch Laboratory.

other major producer of sound-
tioning as well as other build-
aterials, Celotex Corporation,
a new research center on a re-
acquired 12 acre site near Des
es. Research activities already
been moved into the existing
square feet of buildings, and
ter plan is being drawn up for
e research structures.

ensive research in build mate-
and allied products, such as
also is carried on in the Chi-
area, with even greater expan-
lanned for the near future. The
nd Cement Association, whose
nal headquarters are in Chi-
will enlarge its Skokie research
ions with two new buildings
ed to be completed this year.
ctural development laboratory
rovide a giant testing machine
aluation of new concrete tech-
and structural design. A fire research center, with huge furnaces, will work at improving the fire resistance of concrete and concrete building elements. One of the Association's two "concrete farms," or proving grounds, is at nearby Naperville.

Armstrong Paint and Varnish Works, Glidden Company, Sherwin-Williams Company and Martin-Senour Company all maintain extensive laboratories here. Out of Martin-Senour research has come a new color system, developed by physicist Carl Foss. The Foss system enlarges the palette previously available under the widely used Ostwald system through a reorganization of all known colors into three-dimensional cubes. The cubes can be "sliced" in any direction — vertical, horizontal or diagonal — to find wanted and theoretically infinite color gradations, which maintain in this system an orderly and logical progression.

The Ostwald system supplied the basis for such applications as Container Corporation's Color Harmony Manual, widely used as a color standard in industry and design, which coded 944 colors. The Foss system codes thousands of colors, and the range of hues can be contracted or expanded at will. To take advantage of the flexible palette now available, Martin-Senour has developed a new electronic paint mixing machine, which will be available this year, to prepare any of the coded colors in a few seconds at point of sale.

Railroad Research

Railroad research also centers in Chicago where the Association of American Railroads is completing its third research building on the I.I.T. campus. Mechanical, engineering and sanitary research projects are carried on at the laboratories, and the new building will help step up such inquiries as those on ballast, roadbed stabilization and rail design. Proper ballast materials and their application directly affect track laying and surfacing, the most expensive item in railroad maintenance.

A similar research center at I.I.T., maintained by the utility gas industry, is the Institute of Gas Technology. The Institute works on improvements in production, transmission,

Growing With Chicago For Ninety-Four Years

In 1863 Arthur Dixon started a general teaming business in Chicago. It was, one might say, by accident. Upon arriving from Ireland in 1858 he had settled in Pittsburgh. He saw frequent references in the newspapers to a young and growing city a few hundred miles to the west on the shores of Lake Michigan called Chicago. From all accounts it promised to be the coming city of the great middle west. He became convinced that the promise would come true and arrived in Chicago in 1861 to start a grocery store. He was obliged to take a horse and dray in payment of a grocery debt. Instead of looking upon this acquition as a white elephant, he hired a driver and put the man and dray at work, hauling goods for merchants.

From this modest beginning, the business constantly increased until today it is one of the largest in the local transportation field. The success of the company has been very largely due to following its founder's guiding principle, untiring vigilance in looking after its customers' interests. Many of its customers have been continuously utilizing its services for over eighty years.

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Food industry research frequently leads to nonfood uses of agricultural by-products and derivatives. Typical is the Quaker Oats Company's aldehyde, Furfural, an amber liquid derived from such wastes as corncobs, oat hulls, and cottonseed and rice hulls. Furfural's principal uses include the manufacture of nylon and synthetic resins, refining of lubricating oils, processing of diesel fuel, and refining of butadiene for synthetic rubber production. Basic research on chemicals and nutrition, and quality control on company products are carried on at Quaker Oats' new John Stuart Research Laboratories at Barrington.

National research for the meat industry is conducted at the American Meat Institute Foundation on the University of Chicago campus. In addition to basic and applied research on meat and meat products as human food, the Foundation also explores such areas as the handling, curing and end uses of hides; the function of the vitamin B_{12} in animal nutrition; the chemistry of rancidity in fats; new uses for inedible greases and tallows; and use of meat scraps and tankage in animal feeding. The latter project has led to a new facet of the meat industry, the use of over 200 million pounds of animal fats per year in feed for live stock and poultry.

Another example of the direct path from research to production is the new Amoco Chemicals Corporation plant to be constructed near Joliet. Planned for operation next year, the plant will employ a new hydrocarbon oxidation process to make chemical intermediates for the manufacture of plasticizers, dyestuffs, polymers for the synthetic fiber and film industry, and alkyd resins for the paint industry. The raw material, mixed xylenes, will be obtained from the Whiting refinery of the Standard Oil Company (Indiana), whose laboratories helped develop the hydrocarbon oxidation process.

Armour and Company's plant at McCook is the direct outgrowth of the company's research, begun in the 'thirties, on conversion of animal fats to industrially useful chemicals. One of the newer developments of the Armour Auxiliaries, as its 31st street laboratories in Chicago are known, is Hairflex, a packing and
upholstery material achieved by c
pounding curled hair with rub
latex.

Swift and Company's research
oratories are interested not only
perfecting the "cold sterilization,"
irradiation method of preserv
foods, but also in the use of
nuclear aids in studies of plant
animal nutrition, reproduction
other processes.

Petroleum research goes forw
not only in the huge laboratories
Standard, Sinclair Refining C
pany, Pure Oil Company and U
versal Oil Products. but at s
consulting laboratories as Comm
cial Testing and Engineering C
pany, and institutions like Arm
Research Foundation. A new h
combustion technique to rev
"dry" oil wells is being develo
and tested at Armour in the h
of boosting recoveries to 100 per c
as compared with the current 20
60 per cent.

Research Facilities

Chicago's electronics indu
maintains extensive research fa
ties, covering both basic and app
projects. Zenith, for example, is
rently conducting several project
the basic field of solid state phy
as well as practical application
transistors, phosphors and cera
condensers. Beltone Hearing
Company carried on extensive
search in binaural and mona
sound, the results of which have
made publicly available, in
course of perfecting its binaural H
ing-aid glasses.

The American Dry Milk Insti
finances several university rese
projects in addition to those i
own laboratory. The American I
tute of Baking provides consu
and testing services for the ind
and conducts research on the r
tion of wheat and flour, the fre
of bakery products, and bacteri
cal studies. Also headquartere
Chicago are the Underwriters'
oratories, for testing and ex
mentation on electrical equip
supplies and appliances.

Company laboratories cove
almost limitless variety of pro
and services. Continental Can
pany's main laboratory con
agricultural as well as processi
search. Research in food dispe
equipment is carried on by Ba

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ry, ambition, and success . . . this is the atmosphere wing Chicago.

id this atmosphere, Cities Service refineries work l the clock to meet the growing demand for Cities e products throughout Chicago and the midwest.

anwhile, Cities Service consumes the goods and serv- f Chicago in equally increasing measure. For exam- ities Service not only supplies more and more petro- products for all kinds of transportation . . . but it by all forms of transportation, too.

ain that this mutual interchange is the key to an etter future, all of Cities Service—its producing, re- marketing and research staffs—are proud to work h, and for the good of all "Chicagoland"!

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Modern Cities Service Blending Plant compounds and packages the world's finest motor oils for Chicago and midwest motorists.

Typical New Cities Service Station is years ahead in design as are the products it offers. Many new stations like this are now being built throughout the Chicago area.

Blessing Company. Borg-Warner Corporation maintains both divisional laboratories and a large central engineering development section. International Minerals and Chemical Corporation has consolidated its major scientific activities at a General Research Laboratory in Skokie. Culligan, Inc., provides consultation service on water characteristics as well as conducting research related to its own water softening equipment.

Chicago also offers a host of private research consulting firms, such as Colburn Laboratories, Inc., specializing in detergents, plastics, foods, drugs and cosmetics; Robert W. Hunt Company, structural materials, machinery, paint and pipelines; James Laboratories, industrial bacteriology and sanitation; Charles C. Kawin Company, chemical and physical metals analysts; Laboratory of Vitamin Technology, feeds, foods, cosmetics and pharmaceuticals; Miner Laboratories, feeds, adhesives, fats and oils; and Pittsburgh Testing Laboratory, ventilation and air conditioning.

Chicago is Headquarters for "Operation Pure Oil"

Far-flung operations, from oil well to consumer, are coordinated from this base

On the rolling uplands of Colorado there is a place known to oilmen as the Adena Field. It is one of the Rocky Mountain area's major oil fields—in whose development The Pure Oil Company played a leading role. PURE is on the search for oil and has drilled over 500 wells in the last two years. Today it has more than 5,000 producing oil wells in 14 states.

Off the Atlantic Coast a giant tanker plows its way north. In the hold are over 5,000,000 gallons of Pure Oil products destined for East Coast ports. The captain is an officer in the Pure Oil "navy." His ship is one of several such tankers plying the high seas for Pure Oil. Also, in the fleet are 14 towboats and 40 barges on the Mississippi and Ohio rivers. Pure Oil "ground forces" are formidable, too, with over 3,000 automotive vehicles assigned to the transportation command. And the Company's "underground forces" operate over 12,000 miles of wholly or partially owned pipelines.

Just outside of Chicago, at Lemont, Illinois, over 600 people are busy turning crude oil into Pure Oil products. This and other Pure Oil refineries in Ohio and Texas turn out everything from naphtha to asphalt—also fuel for jet engines!

North of Chicago, at Crystal Lake, Illinois, more than 250 scientists and technicians make it their daily business to make sure each product is worthy of the Pure Oil name. They are engineers, chemists, and physicists at PURE'S extensive Research and Development Laboratories. They work to prove that you can "Be sure with PURE."

Up in Bemidji, Minnesota, a car owner tells a Pure Oil dealer to "fill 'er up" with Pure-Premium. And down in Miami, Florida, a Pure Oil dealer reminds a PURE Credit Check customer from Norfolk, Virginia, that it's time for fresh High HP Purelube. Thus, with the help of over 15,000 Pure Oil dealers in 24 states, finished automotive products finally arrive at the ultimate destination—the consumer.

All these far-flung operations—Producing, Refining, Transporting, Marketing, Research and Development of quality petroleum products—are coordinated and directed here in Chicago headquarters.

NOW MORE THAN EVER...

Be sure with PURE

THE PURE OIL PURE COMPANY, U.S.A.

Banking

(Continued from page 63)

of Chicago for space expansion
significant even though the ce
bank serves a wide area outside
cago. The Fed has acquired all o
property in the half block adjoi
its 15-story building and plan
erect a new building that will
50 per cent to the available
space. It is estimated that the
structure will take care of the res
bank's needs for the next 25 yea

A 50 per cent increase in
space should not be interprete
providing for only a 50 per cen
crease in business. Improved eq
ment, or mechanization, has alr
increased the work output of
employes by a wide margin in
last several years, and electronic
processing machines should
possible the handling of an enorm
amount of additional work with
or no expansion in personnel
floor space.

Check Collections

Estimates of the future volun
check collections nationwide als
dicate a far greater rate of inc
than 50 per cent. The joint con
tee on check collection of the A
can Bankers Association, the
ciation of Reserve City Bankers
the Federal Reserve System, fo
ing a study in 1954, reported
the number of checks written a
ally increased from 3½ billio
1939 to almost eight billion in
The committee noted that a co
ation of this trend would brin
number of checks written to 1
lion in 1960 and 22 billion in 19

A banker whose reputatio
astuteness approaches the leger
believes Chicago banks have
prospects than those of any
city, including those on the
Coast. He emphasizes Chicago's
advantages that cannot be eq
by any other area: Chicago
center of the most diversified
trial development in the world
close to coal and iron and othe
eral resources that can be trans
at low cost; it is in the riches
cultural area — an area not s
to frequent crop failures beca
unfavorable weather.

The St. Lawrence Seaway ar
Cal-Sag Channel are discussed
sively elsewhere in Horizons
they have special significance

ɔok for banking. Several Chi- banks have had remarkable suc- in building a large and profitable ness in financing exports and im- s. The middle west is the source major portion of the nation's rts, and it is a major consumer of orted goods, but New York for- y had a near monopoly on the ing phases of this business. To- several Chicago banks have cor- ondents in every part of the free d. By aggressive salesmanship sound performance, they have ined a steadily growing volume usiness in the foreign field. This been especially true since the end ne second World War and the d has been accelerated by the that foreign banks find it advan- ous to deal directly with Chicago s on transactions involving trade the middle west.

mpletion of the waterway proj- is expected to produce a sharp ase in the volume of export and rt shipments in which Chicago be one of the terminals. Chicago ady now with all the banking ities required to carry on foreign anywhere in the world.

An Understatement

o call the paper work in a big overwhelming is an understate- t. The two largest banks in the each receive more than 1,100,000 ks a day. Each check must be lled several times for sorting, re- ing of the amount, charging to ccount of the person or company wrote it or crediting it to a de- or, forwarding to another bank ollection, and so on. Machines ow used for sorting checks into ifferent classifications, but even the aid of these one bank op- s its check "proofing" depart- around the clock, six days a . There's lots of other paper in a bank, but checks are the problem.

he entire banking industry has cooperating to reach agreement ertain standards so that elec- c machines can be used to proc- he daily avalanche of checks. e standards have been agreed , and the use of the electronic processing machines is said to be nent. However, "imminent" not mean next month or next First, the equipment must be ed, and no Chicago bank had lly put its name on the dotted

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Secretary and General Manager

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line as of early 1957. A year or more must then be allowed before delivery can be expected.

The essential element of standardization involves some degree of uniformity of size in checks, and the adoption of a common "language" on the checks so that the machines will be able to read all of them. It wouldn't do, for example, for one bank to use fluorescent ink on its blank checks while another used metallic ink. Machines could be designed to read one or the other, but not both.

The machines will handle checks at incredible speed — many hundreds, and even thousands, per minute. The machines will also have time to take on additional tasks until they will be doing the bank's bookkeeping, and they may even be able to do bookkeeping or other tasks for customers and correspondent banks. Customers' payrolls could be computed and checks written during the machine's spare time. It's a certainty that the electronic devices will be called upon to provide a great amount of information that cannot be obtained now except at too much cost or too late.

There's a difference of opinion as to the effect of the data processors on bank employment. One banker declares that with the computer on the job, all bookkeeping can be done in one small room. That, presumably, would mean the dismissal of many people doing clerical work. Another says the machines will not cut overall employment from present levels, but will halt the constant rise in payrolls and operating expenses. A third asserts that the greatest value of the devices will be their ability to provide information quickly, rather than operating economies, because the machines themselves are tremendously expensive to buy or rent.

Routine Tasks

Any jobs eliminated will be at the lowest level — the tedious, routine tasks. New jobs will be created — jobs that require a thorough understanding of bank operations and the ability to set up "programs" that will tell the electronic machine what to do, down to the most minute detail.

An electronic document-reading machine is already processing checks mechanically on a limited scale in Chicago. The First National Bank of Chicago is one of three banks the United States that issues travel checks. Many correspondent ba also sell the checks as agents of First National. Because these che are uniform in size, are in only f denominations, and all eventu return to the bank, they are ideal mechanical handling. Each ch has 25 code dots of metallic ink or face. Twelve of the dots indicate number assigned to the issuing ag bank, if it was issued by an ag another 12 give the serial numbe the check, and the remaining tells by its position whether the nomination is $10, $20, $50 or $

The machine "reads" this infor tion at the rate of 300 checks a m ute and transmits it to other chines that automatically record data by means of holes in pu cards. The cards, in turn, are through tabulating machines that duce the information to prin form. The system has been in op tion since April, 1955, and during peak season it processes 50,000 60,000 checks daily.

A completely electronic sys would eliminate the punched ca but one additional step not now

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OATS **RYE**

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ed in processing the traveler's ks would have to be taken. The eler's checks are of fixed denomi- ons, but checks written by indi- als and business firms are for ing amounts, and it is not to be cted that these amounts will be ten in metallic, fluorescent or r special ink. When the check hes a bank, therefore, it will be ssary for the bank to write in the unt in "language" that can be by the machine.

Retail Banking

hen bankers speak of retail bank- they have in mind the serving of great mass of the population, in rast to the large scale transac- s when big corporate customers nvolved. The lure of retail bank- arises from the fact that the dle class now embraces most of population and most of the na- 's income. Never before in his- has there been such a vast po- ial market for bank services. The dle class is now the source of the test volume of savings, but the ks have witnessed much of these ngs going into competing nonbanking institutions, and they have seen these and other institutions prosper from serving the needs of the group.

Most banks already have established personal loan departments and small-balance checking accounts for which a service charge is assessed, but it is felt that they could go much farther. For example, mortgage loan business could be built up substantially if banks were relieved of some of the restrictions now imposed on them by law. The banks have had a favorable loss experience with personal loans, and the higher interest rate on these loans is most attractive. Banks could make a strong bid for some of the loan business now going to credit unions, small loan companies, and installment finance firms.

Profit is not the only motive for increasing emphasis on retail banking, however. One banker says that because banking is a highly regulated business, it is essential that it serve the rank and file of the population. In the long run, he says, legislation and regulation reflect the attitude of the public.

Branch banking and retail banking would complement each other like a hand and a glove. The movement of population to outlying sections of the city and to the suburbs has made the location of downtown banks inconvenient for many people. This has been reflected in a much higher rate of deposit growth for outlying and suburban banks in the last several years than for downtown banks as a group.

Branch Banking

The fact that new banks have sprung up in the neighborhoods and suburbs does not alter the thinking of those who believe Chicago will have branch banking some day. Among the points they emphasize are these: A small bank cannot provide a complete range or the high quality of services that a large downtown bank could make available through branches; only big banks can afford to employ expert specialists in taxation, trust administration, investments and the like; the small bank may have trouble finding adequate outlets for deposits, because it can't make loans large enough to meet the needs of big corporate borrowers but must depend on loan demand from

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local merchants and small businesses; a demand for branch banking may come from the principal stockholders of smaller banks when the able, successful president is ready for retirement and there is no one in the organization capable of taking over, for earnings of small banks often are not sufficient to pay salaries that will attract or hold younger men of outstanding ability.

Correspondent Banks

While the subject of branch banking is not exactly taboo, some bankers shun it for fear of offending correspondent banks outside the city. The so-called downstate banks have visions of Chicago giants extending branches throughout the state, as the Bank of America has done in California with some 600 offices. Chicago bankers who admit favoring branch banking declare they are interested only in a system that would enable them to serve the Chicago area. County-wide branches have been suggested as more suitable than city-wide branches. Another suggestion has been that branches should be permitted within Cook county and contiguous counties.

A banker who opposes branch banking bases his stand on the grounds that it would lessen the competition among banks and thereby restrain the economic development of the community.

Banks have problems as well as bright prospects. A question has been raised, for example, as to the ability of the big banks in Chicago to maintain their relative importance as bankers to business. More than half of their loan volume now consists of credit made available to borrowers outside the metropolitan district of Chicago — to companies that operate nationally, and to companies whose demands are too heavy for the banks in their home locality. But deposits of the big banks in Chicago and New York have been static for the last two years while business in general has continued to grow and to need larger and larger amounts of credit. Meanwhile, deposits of banks in the Southwest and the Far West have grown substantially and account for a rising proportion of the national total.

Chicago bankers are confident
deposit growth will be resumed w
the need for credit restraint is
duced. In the meantime, deposit
the big banks have reflected the
eral Reserve's credit policies m
more than have deposits of o
banks. One of the means used
the Fed to hold down credit has b
to limit its open market purch
of United States Government sec
ties. Thus, the banks, when
have sold large quantities of th
securities to obtain funds to len
their customers, have had to sell t
to other banks and institutions,
to corporations. These buyers
for the securities with checks dr
on banks — big banks, mostly.

The modest earnings of banks h
been another cause for concern.
recent years it has been exceptio
for a bank to earn 10 per cent o
invested capital, and bank st
have consistently sold at less
book value. Under these circ
stances, the only practical way f
bank to add to its invested capit
by plowing back earnings, and th
is argued, is not fast enough. A pr
inent industrialist who shares
view thinks the country will nee
least a dozen banks with a bil
dollars of capital and surplus. W
this capitalization, a bank wo
have the power to lend one hun
million dollars to a single borro

Rise In Rates

The rise in interest rates in
was a momentous thing for b
and many believe it ushered i
new era. Bank earnings were e
lent, despite the losses incurre
selling low-yield government se
ties. Most important, the pros
appeared favorable that interest
would remain relatively high
some time, and that bank earn
would benefit accordingly.

Better earnings enable bank
build up their capital accounts
rapidly, and they make bank st
more attractive to investors in
event a public sale should be u
taken to raise capital. The siz
the invested capital determines
only the maximum amount that
be lent to a single borrower, but
the aggregate amount of loans
a bank can make. There's no
limiting the ratio of total loan
invested capital, including rese
but bank examiners don't like

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atio gets above six to one, and ers avoid offending examiners.

ere are other factors in the fa- le outlook for earnings. One is xtensive growth in trust business he likelihood that it will con- to increase. The relatively rate of growth of the Midwest Exchange as compared with stock exchanges, for example, ncouraged most of the nation's r corporations to appoint Chi- banks as transfer agents and rars for their stocks. Chicago made impressive gains as an tment banking center, and this rought to the banks appoint- s as trustee under bond inden- Appointments as trustee of on, profit-sharing and employe re funds have multiplied.

aders in the business of bank- leclare that banks are unfairly icapped by reserve requirements are excessive; by having to com- for deposits, loans and other ess with agencies that are not red to maintain reserves, have rtant tax advantages, and are ubject to serious restrictions in ing loans; and by having to an extra load when credit restraints are imposed by the Federal Reserve System, to compensate for the fact that the competitive agencies cannot be reached directly by the Federal Reserve.

Reserve Requirements

Major banks in Chicago and New York City are especially burdened by the reserve requirements. They are classed as Central Reserve City banks and are required at the present time to maintain reserves of 20 per cent against demand deposits and five per cent against time or savings deposits. In other large cities, banks classified as Reserve City banks must keep on deposit with the Federal Reserve Bank of their district reserves of 18 per cent of demand deposits and five per cent of time deposits. All other banks, called Country Banks, are required to maintain reserves of 12 and five per cent. Banks earn nothing on reserve funds deposited with the central banks. In addition to reserves, the banks must keep substantial amounts of cash on hand. Thus, a large portion of their funds can not be used to produce earnings.

Reserve requirements are too high all around, and there is no longer any justification for discrimination against banks in cities, bankers insist. The American Bankers Association has proposed a gradual reduction of reserve requirements to a uniform ten per cent against demand deposits and two per cent against time deposits, and recommended that vault cash be counted as part of the legal reserves. The ABA suggested that the Federal Reserve Board should have authority to vary reserves on demand deposits between eight and 12 per cent.

These proposed rates would be fairly close to those in effect between June 21, 1917, and August 16, 1936, when required reserves against demand deposits were 13 per cent for Center Reserve City Banks, 10 for Reserve City banks, and seven for country banks. Required reserves against time deposits were three per cent for all three classes. Current high requirements were imposed originally to offset the inflow of gold to the United States following the devaluation of the dollar in 1933-34, the bankers association said.

Arguments in support of lowering

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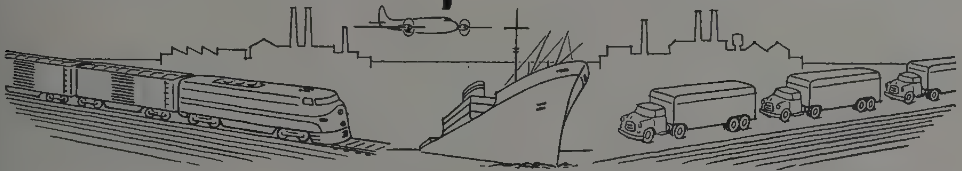

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the reserve requirement are based primarily on the contention that banks are now more liquid and better supervised, that deposit insurance virtually precludes heavy deposit withdrawals such as those of the early 1930's, and that the present discount rules and the policies of the Federal Reserve Board assure liquidity for the banking system. The monthly publication of the Federal Reserve Bank of Chicago, BUSINESS CONDITIONS, confirms these contentions in an article on "Liquid Assets and Bank Liquidity," in the December, 1956, issue:

"The banking system today, however, remains much more liquid than it was 25 to 30 years ago. In addition, many safeguards have been set up to ward off the type of debacle that occurred in the early Thirties. Deposit insurance, stock margin requirements, more careful bank examination and supervision and the like have all strengthened the nation's monetary structure. Moreover, the Federal Reserve System is in an improved position to supply the banking system with the liquidity necessary to forestall financial crisis."

The banking and currency committee of the United States Senate has prepared a bill calling for extensive revision and modernization of federal laws covering banking and credit. Some of the proposals, if enacted, would make it easier for banks to raise new capital and grant more freedom in making certain types of loans. For example, banks would be authorized to issue preferred stock and debentures, to obtain capital. The bill also calls for a higher limit on real estate loans, and would authorize the banks to make 18-month loans for industrial and commercial construction up to 100 per cent of capital and surplus.

The growth of savings and loan associations, credit unions, currency exchanges, insurance companies, finance companies, and other financial institutions or agencies that compete with banks for savings or loans or both, has taken some business that the banks would have been happy to have. Tax advantages of some of these organizations, along with freedom from reserve requirements and more liberal regulations on lending, are considered unfair competition, but bankers are more concerned
cause the banking system must
up for the fact that these compet
are not directly affected when
Federal Reserve Board tightens
by raising the discount rate
open market operations. In
there is a tendency for business
diverted from banks to these
petitors at such times.

President Eisenhower has re
mended the creation of a commis
to study the effectiveness of pr
controls over money and credit.
proposal has received influential
port.

Printing

(Continued from page 93)

the Air Force. Basically, both
esses involve shining a light thr
a photographic film containing
original copy and artwork. The
then hits a metal plate that h
positive electrical charge. This ch
is erased by the light impulses
cept in those areas that are ma
by the letters or pictures on the
Negatively charged ink is then i
duced, which orients itself auto
cally into the proper letter shap
produce readable copy. The i
deposited either directly on the
per (smoke printing) or is t
ferred from plate to paper (ze
raphy) with virtually no pres
required.

A third process, "ferromagn
raphy," is similar except that
tronics instead of a light
produces the letter shapes on
plate, and magnetism instead of
tricity attracts the ink. Paper p
over the inked plate, and the me
is transferred into readable
again with virtually no pressure

A recent industry study predi
". . . We can expect that in the
tant future one or more of these
processes will make obsolete, for
applications, conventional pri
methods. The advantages . . .
great. Faster speed and less
ready are needed in newspaper
magazine presses to allow more
for editorial work. Greater spee
book and other fields of pri
will enable more work to be
duced in the same time. Lower
are necessary in all printing
The new processes can satisfy
needs."

Several other new printing
niques, potentially capable of pr

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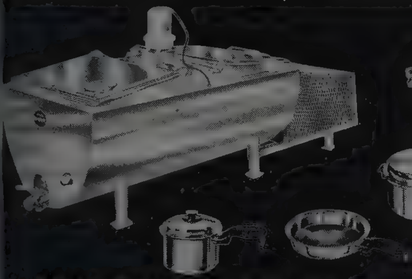
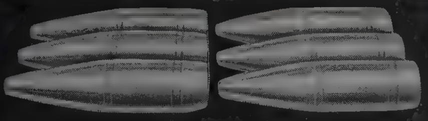


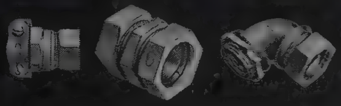
SOLAR PERMANENT COMPANY

Bulk milk tanks and stainless steel cookware are the products of the Solar Permanent Company. The Solar Milk Minder is a refrigerated milk tank made of stainless steel and has wide use in the dairy field. The tanks range in size from 120 to 500 gallons. The company also makes top quality stainless steel cookware.



ORDNANCE

Artillery shells and tracked military vehicles were produced by Ordnance during the War. Maintenance, modification, and storage of tracked military vehicles were also performed by Ordnance. If called upon, Ordnance with its highly skilled technicians, will again render its service.



CONDUIT FITTINGS DIVISION

Through engineering and precision workmanship, Conduit Fittings has developed a line of quality malleable iron fittings for electrical conduit and cable. New types of electrical fittings are being designed for production.

CLEARING MACHINE CORPORATION

Clearing Machine is one of the nation's leading manufacturers of mechanical and hydraulic power presses for the metal forming industry in sizes ranging from 45 to 16,000 ton capacity. Clearing's other plant in Hamilton, Ohio, makes smaller presses including open back inclinable models.

CHICAGO STEEL TANK COMPANY

Chicago Steel Tank is serving the industry as a fabricator and field erector of carbon and alloy vessels, process equipment, tanks, and weldments. By continually expanding their facilities, C.S.T. is developing in step with the industrial progress of Chicago area.

The Above Are U. S. Industry, Inc., Divisions in the Midwest.

With more industry and trade being attracted to Chicago, new and dynamic opportunities present in this area. In the five Midwest divisions of U. S. Industries, Inc., research is being nducted to anticipate the expansion of industry, farm, and home products. U. S. Industries will prepared to contribute to the fabulous future of the Chicago area.

U. S. INDUSTRIES, INC.

250 PARK AVENUE, NEW YORK 17, N. Y.

ing these same benefits — lower cost, higher production, better quality — are even now beginning to filter into the nation's print shops. One of the new techniques is photo-composition. Well over 200 photo composing machines are reported to be in operation at present, the bulk of them for offset and letterpress printing jobs.

The basic difference between composing metal ("hot") type and photo ("cold") type is that the former uses a metal mold (matrix) that shapes liquid lead into a letter, a word, or a line of copy, while in the latter, light shines through a celluloid matrix and reproduces the letters and words on photographic film.

Cold Type

Since cold type is essentially two-dimensional, there is no type-height problem. Photo-composition has two other major advantages. For letterpress display ads, it reduces considerably the amount of work required to position type and artwork. And in offset printing, photo-composition permits direct transfer of copy from type to printing plate — bypassing the preparation and photographing of a reproduction proof. Photo-composition is not perfect, however. The machines are relatively expensive, and more work is required than with conventional composing machines, usually, before the copy is ready to be set.

Innumerable other new printing techniques are in various stages of development. Chicago's Ludlow Typograph Company has developed "Bright Type," which bypasses the offset reproduction proof and obtains a photo negative directly from the type itself. Another local firm, Lake Shore Electrotype Company, a leading manufacturer of the printing plates used to turn out many books and magazines, is working on curved plastic electrotypes which would replace the metal ones now used on rotary presses and would also eliminate the accompanying need for expensive and time-consuming electroplating. In suburban Evanston, Standard Rate and Data Service has developed a "direct image" offset plate which completely short circuits conventional printing methods. Instead of casting type, pulling a reproduction proof, photographing
proof, then etching the proof ont
metal plate, the SRDS process tra
fers the copy from type direct
plate.

Electronic Machines

Electronic engraving machines,
which a photoelectric cell picks
the original copy and etches it i
a metal or plastic plate, have b
used for almost 10 years by ne
papers for coarse screen halfto
Engraving time has been cut fr
several hours to less than one. In
future, machines capable of handl
higher screen book and magazine
gravings, of changing the size of
image at the same time that t
transfer it, and of reproducing l
cuts as well as halftones, should co
into wide use. Within the past
years an electronic engraving de
for accomplishing the second ob
tive has been unveiled; several fi
in this country and abroad are wo
ing on the other two.

Magnesium plates, together w
a fast-etch process developed by D
Chemical Company, are provid

Bud Rausch Florist

Flowers By Wire

Commercial and Industrial Accounts Invited.
Order by Phone with Confidence.

CITY WIDE DELIVERY

Flowers Telegraphed World Wide
Bonded Member of F.T.D.A.

Quality Flowers, Plants and Planters

Floral Arrangements Designed to Please the Most Fastidious Recipient.
— Personalized Attention —

HUdson 3-8210

Phones: HUdson 3-8210-11

Chicago 20, Ill.

1314 W. 79th St.

lar benefits in newspaper photo- nical engraving operations. Re- chers are now looking for addi- al metals which can be etched kly — zinc is one which has ved itself amenable — and they're ing existing fast-etch processes andle magazine and book work. of magnesium printing plates on spaper rotary presses as a replace- t for the present largely lead es is also being studied. Mag- um prints far more impressions, at present is more expensive. cally, this is because it can't be ted down afterward and involves a work prior to the press run.

tremendous amount of research oing into color printing methods. ong the major goals are lower , better fidelity, and faster, more omatic reproduction equipment. cago's R. R. Donnelley and Com- y, which operates the world's est printing plant, has developed, ooperation with Radio Corpora- of America, an electronic scan- device that is aimed at achiev- the first objective. Another local , the Miehle Printing Press Com- y, perhaps the nation's foremost ufacturer of sheet-fed presses, has been conducting basic research on the same problem. The Chicago Tribune, a pioneer developer of color for the newspaper page, recently added to its laurels by devising a method of drying the mats used to prepare color printing plates. The new method greatly reduces the problem of plate registry — a particularly vexing one for color printers.

Six Colors

Goss Printing Press Company, located on the city's west side, recently finished installing a new rotary press at Donnelley's plant. It can print up to six colors on each side of the paper web. The best that could be done previously was five colors on each side. The new unit will turn out Life magazine at speeds approaching those of newspaper presses, and up to 50 per cent faster than is now possible with the fastest magazine presses.

Besides these advances, a number of others are on the way. Offset printers and press manufacturers are experimenting with new kinds of "pre-sensitized" plates and other surface treatments; with automatic methods of controlling the dampening of the plate; and with better web-fed presses. In both letter and offset presses, automated ink supply systems, some of them involving electronics, are being blueprinted and tested. Letterpress manufacturers are working on rotary units specifically designed for short-run jobs — a field now monopolized by offset and flatbed letterpresses. Potentially, this latter development means higher speed and less cost to the customer.

Gravure printing has benefited greatly from new platemaking methods. Particularly notable developments have come about in sheet-fed gravure, making it much more valuable in advertising printing.

Paper manufacturers, meanwhile, are developing printing surfaces that are more level. Uncoated paper now has tiny peaks and valleys that require extra work in the press room to insure proper ink distribution. Butler Paper Company, which established the first paper mill in Illinois more than 100 years ago at St. Charles, is one of the research leaders. Officials of the firm report that many new materials, ranging from sugar cane to plastics, are being studied in

From Fourth to First?

ALTHOUGH a thousand miles from the ocean, Chicago lies in the fourth largest port area of this country. Ships from many lands make this city their port of call.

When the new St. Lawrence seaway opens, both outbound and inbound shipping tonnage will multiply. Chicago, strategically situated in the industrial and commercial heart of America, has a strong probability of becoming the nation's first seaport.

Lake Shore National Bank, with its many services, can help you benefit from Chicago's growing importance as a world port.

All These Services Are for YOUR Use

Foreign Exchange
Letters of Credit
Commercial Loans
Bank Collections
Mortgage Loans
Loans to Small Business
Trust Department
Property Improvement Loans
Checking Accounts
Personal Loans
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Drive-In Service
Bank-by-Mail
Safe Deposit Vaults
Travelers' Checks

LAKE SHORE NATIONAL BANK
605 NORTH MICHIGAN AVE., AT OHIO STREET
MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

the effort to improve the quality of printing papers.

The publishing industry also is undergoing profound changes. Officials of the Row-Peterson Company, headquartered in Evanston, believe the present comparatively modest use of film strips as teaching aids in the primary grades will vastly increase during the next several years. Another leading textbook publisher located here, Scott Foresman and Company, has added "background notes" to its readers. These notes, written by the authors and artists who create each book, are designed to enrich the child's reading experience by giving him interpretations of the material that may differ from his own.

Both Row-Peterson and Scott Foresman are pioneering a new approach to the teaching of reading, mathematics, and science — one which lays greater stress on visualization and development of reading capabilities, as opposed to learning by rote.

The fact that so much research activity in both printing and publishing is concentrated here is due largely to Chicago's pre-eminent position in both industries. Besi R. R. Donnelley and Rand McN – world's largest mapmaker an leading printer of transportat tickets, children's books and ency pedias – Chicago's printing fra nity includes such giants as Cu Press, W. F. Hall Printing Compa American Colortype, Manz Corp tion and some 2,000 additio plants. Chicago is also a center of encyclopedia industry; Britann Compton's World Book, Americ American, American Peoples, American Educator encyclopedias all published and/or printed h And in text books, besides S Foresman and Row-Peterson, th are Laidlow Bros., Lyons and Ca han, and Follett Bros., among oth

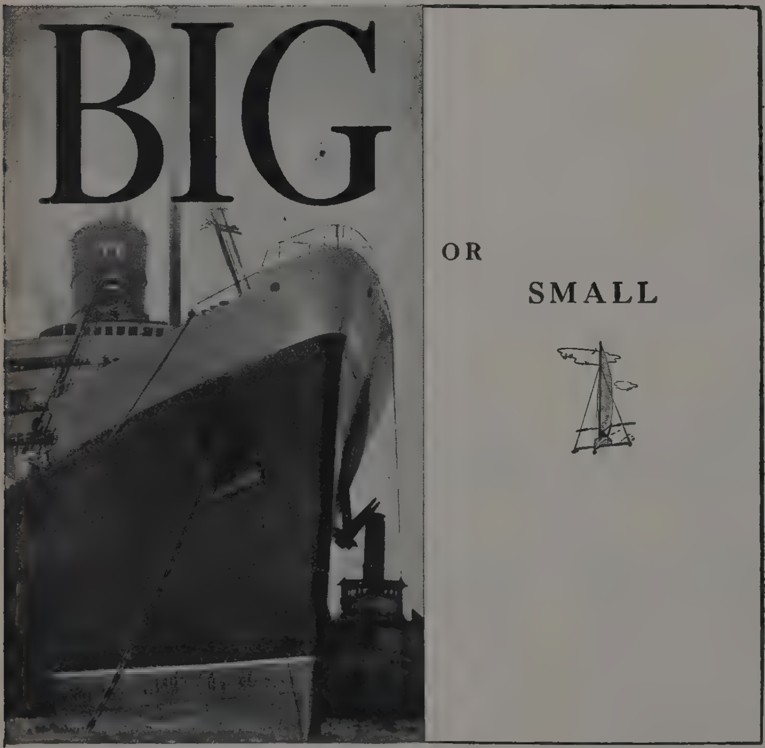
The 1954 census of manufact shows that the value of produc of the newspaper and job prin industries in the Midwest is hig than in any other area. The rat growth since 1947 in these two in tries, plus growth in offset prin output, has been larger here anywhere else.

Trend to Continue

Local industry spokesmen feel trend is going to continue. Frank Bagamery, general mana Graphic Arts Association of Illin "Chicago has a better labor-man ment record than any other m printing center. Labor peace is ticularly important to the prin buyer, since he normally contr for work several months aheac the time it is actually produced."

A postal rate increase will ten bring additional printing busi into this area, Mr. Bagamery f Reason: the city's central loca and unrivalled transportation fa ties "will enable publishers of tional-circulation magazines not printed here to overcome part the effects of the increase."

The St. Lawrence Seaway and Sag channel improvements are o good omens, he adds. The fo will bring in new industry, enlar the local printing market, and reduce the transportation cos newsprint as well as that of impo bookpapers consumed in the west. The Cal-Sag widening increase the usefulness of Chic all-water route to the south, an that is growing in importance source of paper.



As the transportation hub of the nation, Chicago's new horizons will encompass, in ever increasing volume, cargoes, both big and small, from and to the far corners of the world. We join in the determination to foster and facilitate the growth of this commerce by offering the finest and most modern concepts of transit insurance — both big or small.

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Railroads

(Continued from page 60)

in Chicago), predicts that railroad carloadings will grow to 710 billion ton-miles in 1960 and 880 billion in 1965. This would mean a gain of some 14 per cent in 1960 over 1955 and another gain of 24 per cent in 1965 over 1960. The study sees gains of various sizes for every other form of transportation too. It predicts a bigger gain for air freight than for any other form, including railroads, but air freight's share of total goods transported even in 1965 will be less than one per cent, according to the study.

Another and somewhat more optimistic forecast has been made by General Electric Co. G. E. officials predict that railroad volume will increase to nearly 920 billion ton-miles in 1965, a gain of 43 per cent over 1955. They also believe that the railroad industry's share of total goods transported will increase to 55 per cent in 1965 from about 48 in 1955. This analysis was prepared principally for internal use by G. E. as a railroad supplier and was described recently by K. R. Ross, manager of transportation industries sales development at G. E., in MODERN RAILROADS magazine. "We at General Electric believe railroading is on the march to a significantly greater future," Mr. Ross said.

Both studies base their forecasts in large part on projected continuing increases in gross national product and industrial production. It is not possible of course to predict quantitatively how much railroads' traffic may grow as a result of faster, better service that will come from electronic traffic control, automatic freight yards and such totally new concepts as trailer-on-flatcar "piggyback" operations.

Railroads, despite the vast 30-year growth of other forms of transport, have remained and probably will continue to be the major form of transportation, principally because of one basic but frequently overlooked fact: the flanged wheel riding the steel rail represents the cheapest form of overland transport of general commodities. This perhap
best illustrated by Interstate C
merce Commission figures w
show that the cost of moving one
of freight one mile by rail is 1.4 c
while the same movement by t
costs 6.4 cents.

Movement by pipeline gene
is cheaper than by rail but pipel
of course can handle only fluid-
commodities. Despite the gre
present economy of pipelines,
railroad analyst and official as
that railroads, with electronic y
and other improvements and gre
rate making freedom, "could at
large quantities of petroleum tr
nothwithstanding the vast mileag
pipelines." The official is John
Barriger, a former Chicago railro
who recently was named presi
of Pittsburgh & Lake Erie Rail

Bulk Commodities

Great Lakes shipping als
cheaper than rail but it obvious
limited geographically and is
fined entirely to bulk commo
such as coal and ore. Other typ
lake traffic probably will be
more important after the St.
rence Seaway opens. But some
lysts believe the net effect of
Seaway on railroads will be t
crease traffic of Chicago-based
other western roads and prob
southern lines, while eastern
may lose some traffic.

There are no adequate cost fi
available on river and canal m
ments because relatively little o
traffic is reported to the I.C.C.
rates presently do not reflect co
operating locks and maintainin
ter rights of way. However, tw
cent instances show that when
rates dip below barge-rates, the
fic moves to the railroads. On
volved movement of coal to Ch
and the other applied to item
merly moving on the Missouri

Railroads of course never ha
doubtless never will have 10
cent of the transport business.
large and very small and speci
types of shipments undoubtedl
continue to move by other for
transport, and geographical an
factors will continue to be we
when shippers decide which fo
transport to use. But the econo
moving a train of cars over rai
pears to insure for railroads a
slice of future transport busin

LOOKING AHEAD

For almost a century, facilities of The Richardson Company have increased steadily — paralleling the history of our expanding American economy.

Today, on the eve of our 100th anniversary in 1958, we look forward to even greater development. Richardson will share in the dynamic growth just ahead for Chicago commerce and industry . . . our production of molded and laminated plastics will be geared to tomorrow's demand.

In anticipation of that demand, Richardson is now building a modern research and development laboratory at Melrose Park, which will triple the present facilities. From this complete research center will come new techniques, new processes, and new products for the public and industry.

Richardson is looking ahead — with Chicago — to dramatic new horizons.

The Richardson Company

Melrose Park, Illinois

Plants

Melrose Park, Ill.	Indianapolis, Ind.	New Brunswick, N.J.
Newnan, Georgia	Tyler, Texas	Ogden, Utah

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ATTENTION: Vacant property owners should consider seriously the merits of registering the land under the

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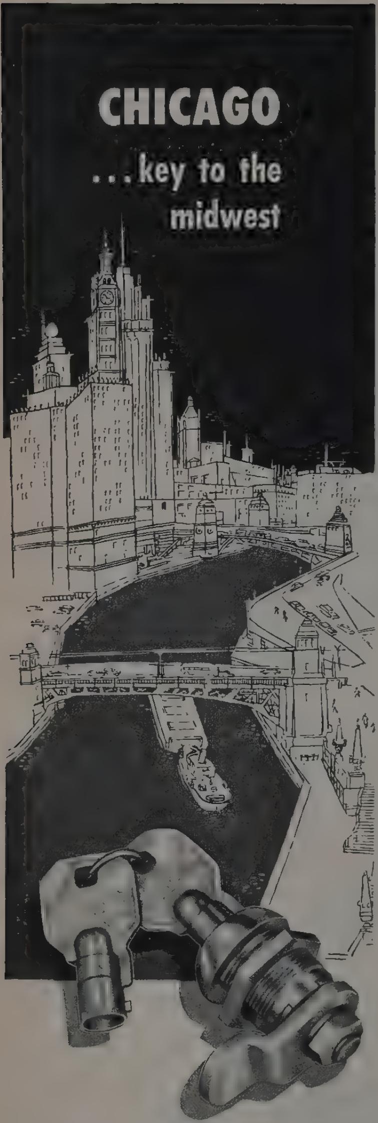

Construction is underway on a mammoth project which will bring the world to Chicago's doorstep.

This deep-water port will open new markets for Midwest goods and increase Chicago's influence on global commerce.

Chicago Lock joins with other Midwest industries in saluting this progressive undertaking.

Manufacturers of precision locking mechanisms for vending machines and office equipment

CHICAGO LOCK CO.
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"There is nothing in the blueprint stage, or on the drafting boards, or even as yet in the dreams of men, that threatens to replace the train for low real costs, economy of fuel consumption and economy of manpower," says Daniel P. Loomis, chairman of the Association of Western Railways, which makes its home in Chicago.

Passenger business, which now amounts to only five to ten per cent of total revenues for most railroads, still is substantial although it has suffered at the hands of the automobile and airplane. The railroads in 1955, the latest year for which figures are available, handled 28.5 billion passenger-miles of traffic. All other public carriers combined — airplanes and buses mainly — handled 30 billion passenger-miles. But the bulk of intercity travely was by automobiles, which racked up 475 billion passenger-miles.

More important though, for the railroads, passenger business over the past year or so indicates the long decline has halted and may at last be heading upward. Rock Island Lines' passenger business, for instance, was higher in 1956 than 1955. President D. B. Jenks attributes the increase to growing congestion on the highways and airways.

Passenger Business

Many railroaders take sharp issue with assertions from their competitors and others that railroads want to quit the passenger business. "We on Santa Fe are very confident that there is a bright future for this form of travel," declares R. T. Anderson, general passenger traffic manager. "No other form of travel can offer the wide variety of attractions that are to be found on the modern American streamliner — choice of meals, room to roam, eye-level views of passing scenery, privacy and relaxed atmosphere." Santa Fe, Burlington, Rock Island and a number of other railroads are backing their optimism with millions of dollars of hard cash for new equipment and are experimenting with radically new types of lightweight cars.

New locomotives, cars, tracks, yards and communications systems which will come into wide use in the next decade promise greater operating economies for the railroads, better service for passengers and shippers,
and a big market for railroad su
firms.

The lowly, rumbling freight ca
one very real sense is the king of
railroad. Freight cars of the fu
undoubtedly will lend themse
more readily to mechanized hand
of shipments. They surely will
made to operate in trains with tod
standard cars but they may not e
look like the average freight ca
1957.

"Container" Cars

One type of car that may b
wide usage in 1967 would consis
a platform on wheels on which
tainers — small sized or as big
box car — are placed by lift truc
crane. The containers would
packed by the shipper and unpac
by the consignee, and if either i
cated off the rail line the conta
would be trucked to or from
railhead. Several railroads are
ping off in the "container" direc
already. Rock Island Lines rec
was the first to introduce demo
able car bodies designed by
Industries, Inc. This system, w
Rock Island calls its Convert-A-
Service, employs a new, lightw
basic car which consists mainly
platform on wheels. The cars do
any kind of a transportation
with their companion "cargo u
— closed box units, open top gon
bodies, covered hopper units,
car units, flat bed pallets for
and even auto carriers. The
units are put on and off the cars
fork-lift trucks.

Chicago's North American
Corp. and meat-packing Geo. A.
mel & Co. recently service-test
somewhat similar refrigerated
unit for carrying meat from pac
house to grocery store. Missour
cific Railroad not long ago st
carrying full-sized truck-trailer
ies, minus wheels, in railroad
dola cars. They are carried to
from the railheads on highway
frames and taken on and off th
cars with overhead cranes. C
peake & Ohio Railway has deve
a car that looks much like a
about the size of a truck-traile
"Railvan" has two sets of retra
wheels — steel for riding the rail
rubber for the highways.

All these developments are co
to trailer-on-flatcar "piggyb
units which are becoming mor

familiar sights. A few railroads
ed piggyback systems in earnest
t four years ago and now some
the major U. S. railroads offer
service. Piggyback operations,
d at obtaining business from in-
ies not located on railroad lines
hauling smaller lots more effi-
ly, involve the movement of
ar truck-trailers on specially
pped flat cars or newly designed
of cars. Many railroads carry
rs of common carrier truckers
ll as railroad-owned trailers.
gyback business is growing rap-
lthough it still is small peanuts
ared with the volume of carload
t. "Piggyback is growing so fast
igures on it are out of date be-
they are published," says Roy
auf, president of Fruehauf
er Co. Burlington Railroad's
back volume in the first eight
hs of 1956 was 60 per cent
r than a year earlier, Wabash
oad scored an 83 per cent in-
, Pennsylvania Railroad's vol-
was up 40 per cent, Mr. Frue-
said.

Piggyback Terminal

e of the largest piggyback ter-
ls is in Chicago. It is operated
il-Trailer Co., a firm that han-
erminals and some solicitation
ess for the Pennsylvania and a
er of other railroads. The Chi-
terminal was opened March 3,
and already is handling about
trailers weekly.
e forecast puts piggyback vol-
at $100 million by 1960. An-
study, prepared by Transporta-
Facts, Inc. for Rail-Trailer Co.,
ates $1 billion volume by 1965.
study forecasts a 1965 volume
billion ton-miles yearly.
pite its growth so far, some
backing problems remain to be
d out. Railroads probably will
to get together and decide on
asic type of car and equipment
used so that cars can be univer-
nterchanged as regular cars are

er important, if less spectacu-
evelopments in railroad cars are
making. For instance, Chicago-
General American Transporta-
Co., which leases out its 48,000-
eet, has developed a highly
sful "Airslide" car. This car
shippers' costs by permitting
hipment of granular and pow-
materials and eliminating ship-

Symbol
of many things

The Fairbanks-Morse seal is a symbol of experience—experience acquired over a span of 126 years of manufacturing to American standards in the American tradition.

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The Fairbanks-Morse seal is a symbol of honor—honor as integral as the steel itself in the pumps, motors, engines, scales and the many other products identified by this device.

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Everything we build is marked by this seal—and what over the years it has come to symbolize. Fairbanks, Morse & Co., 600 South Michigan Avenue, Chicago 5, Illinois.

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DIESEL ENGINES AND LOCOMOTIVES • RAILROAD EQUIPMENT • PUMPS • SCALES
ELECTRIC MOTORS • HOME WATER SYSTEMS • POWER MOWERS • MAGNETOS

ping containers. Flour, sugar, starch and many other items can be unloaded quickly into any conveying system through the use of a blower system. The company has developed a "portable Airslide transfer unit" to move commodities out of the railroad car and into special trucks for delivery to off-rail plants.

Another development that holds promise is the "unit load car," unveiled recently by Chicago's Calumet Industrial District Co. and International Steel Co. The car is about the size of a conventional boxcar but it has five separate compartments, each with its own door. The car can be unloaded in ten minutes. About 3,000 cars are on order and probably will be used mainly by food manufacturers.

If the freight car is king of the railroad, the locomotive surely is the queen. The mighty diesel has revolutionized locomotive power in the past decade but there is little doubt that it will have to make room for even mightier engines in the next ten years.

The importance of locomotive power is drawn sharply by Mr. Barriger: "From the beginning of railway history, the progress of these carriers has been determined by the rate of advance of the capacity of locomotives to haul heavier trains faster and at reduced unit costs for fuel and maintenance. The diesel era has effectuated the most rapid progress in rail transportation ever resulting from any single improvement."

But already new developments are grabbing at a bit of the diesel's glory. The gas turbine locomotive applies to railroading the same principles used in power plants that drive jet airplanes. Gas turbine locomotives are a reality even though much development work still is being done. They pack much more power into a smaller unit that the diesel. Union Pacific Railroad, which operated a few gas turbines as far back as 1951, now has ordered 30 much more powerful units from General Electric Co. and plans to order another 15. Each of the 45 units will be of 8,500 horsepower, the most powerful ever built, and they will cost a total $45 million. The G. E. locomotive is fueled by a low cost oil but a group of railr
is developing a coal fired gas tur

The LaGrange, Ill., headquart
Electro-Motive Division of Ge
Motors Corp., the major U. S. bu
of diesel locomotives, still th
highly of the mighty diesel.
E.M.D. also has a hush-hush pr
looking toward development of a
type of locomotive.

Atomic Locomotive

Some railroaders believe new
nical developments in the fiel
electricity will make possible
economical electric locomotives.
atomic powered locomotive
well make its appearance in the
decade although a number of
nomic and technical problems
main to be solved. The Universi
Utah in 1954 found the atomic
motive to be "technically feasi
Baldwin-Lima-Hamilton Corp.
the Denver & Rio Grande Wes
Railroad along with Walter K
Laboratories have a project u
way to study the engineering, te
cal and economic aspects of an at
powered locomotive. A bill has
introduced in Congress prop
that the government supervise b
ing a prototype.

Electronics and mechanization
doubtedly will play a larger
larger part in railroading in the
decade in yard operation, comm
cations, signaling, maintenance
office procedures.

While there is as yet no centra
traffic control station that th
switches over an entire major
road system, developments are
ing in that direction. A numb
railroads with centralized traffic
trol on limited sections of road
are consolidating more and
control points under one roof.
Burlington, for instance, has co
dated three control points so
now 380 miles of road are cont
at a single point. New York Ce
recently placed a major C.T.C. i
lation in operation on its line
Buffalo to Cleveland. The 163
section is controlled at Erie, Pa.
system of electronic central co
of signals and switches pe
freight train speeds of 60 mil
hour on two C.T.C. tracks whil
maximum was 30 miles an ho
the old four track setup. The
electronic tracks have the sam
pacity as the former four tracks.

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York Central plans to extend C. from Cleveland to Chicago n the next few years.

e next decade probably will see push-button freight classifica- yards similar to the Milwaukee 's new $5.5 million yard at Ben- lle. These yards give shippers , better service because they le the railroads to make up s faster and more economically. ronic retarders slow down cars e right speed to minimize dam- o shipments. Chicago & North ern Railway is considering bids make its huge Proviso yards into lectronic operation. New York ral plans a similar yard at Elk- Ind. While it took an average hours for a freight car to move gh Central's old Buffalo, N. Y. it will take seven hours to move gh the new electronic yard. The , Joliet & Eastern or "Chicago r Belt" railway's new electronic Yard at Gary, Ind. now is in e.

Electronic Treatment

mmunications and paper work etting the electronic treatment Chicago & Eastern Illinois Rail- plans to complete installation e end of 1957 of a railroad-wide network. Locomotives already equipped with antennas and radio gear that permit engi- to talk with the caboose, and ystem will permit him to talk other trains, yards and other s. Portable radio sets used in hing operations are speeding rd work. On all U. S. railroads than 6,000 locomotives now are equipped.

icago & North Western Railway talling a mechanized, improved ccounting system as the first step plication of electronic account- rocesses. The next step probably be an "integrated data process- enter" at Chicago which will report whenever a freight car nes North Western tracks any- e on the system. The last step, ably three years away, accord- o Chairman Ben W. Heineman, installation of a large electronic puting machine. Rock Island s has put into operation a sys- or collecting and disseminating reports. It uses an electronic n," teletype circuits and other pment. New York Central re-

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cently placed in operation a mechanized car reporting and accounting system that links yards from Chicago to New York.

Electronics and even the atom are finding other uses too. Television is being tried at highway-railroad grade crossings so that one signalman can watch many crossings. Some experimenting has been done with complete remote control of a train which could pave the way for automatic operation without any operating personnel aboard. One railroad's atomic energy research has produced a switch lamp that will glow for ten years without fuel or maintenance. Several railroads already are using electron microscopes to evaluate lubricating oils.

The advent of the diesel locomotive, automatic freight yards and centralized traffic control systems have trimmed the number of railroad employes although wages per employe have continued going upward. Although the next decade may well see a continuation of the trend toward fewer employes, the decline undoubtedly will be accomplished by retirements rather than layoffs. And it will be accompanied by increased employment of technical personnel. For example, New York Central recently created a new position of director of technical research, and other roads are setting up research departments. Wages per employe are going to continue to rise in the foreseeable future. The average railroad employe in 1955 received $1.99 an hour, the highest on record then. But wages are higher now and will automatically increase this year and in 1958 under the terms of recently signed union contracts.

Forecasts of heavier freight and passenger volume, and the advent of electronics and mechanization, presage a bright decade ahead for railroad supply industry. The ply industry is a more than $1 bil a year business that, like the rail industry itself, is centered in Chic

President James Symes of Penn vania Railroad has estimated roads will need $20 billion of equipment and facilities over next ten years. Another railroad cial has estimated that railroads need 75,000 new freight cars year for at least the next five year replacements and fleet additi Much of the passenger car fleet is in need of replacement.

These freight car needs plus or for new types of equipment suc that for piggyback operations sh provide high levels of business car builders such as Pullman-St ard Car Manufacturing Co. Busi should be good too for Chicago parts suppliers such as Amer Steel Foundries, Chicago Rai Equipment, Griffin Wheel, Po Co., Pyle-National, Standard way Equipment, and Vapor Hea Corp.

Now that a number of new l weight and other radical-design senger trains have been unve passenger car manufacturers are ing for an upturn too. Pennsylv Railroad may have started the turn when it recently ordered a n ber of new Pioneer III type cars

There are now some 16,000 d units with 23 million horsep operating on U. S. railroads and of this power has been purch since World War II. Transport Facts, Inc., in its study for the way Progress Institute, estimates 12,800 new locomotives, other electric, will be needed by These include replacements as as nearly 3,000 additions to the motive fleet of U. S. railroads.

Jobs

(Continued from page 33)

be many more than 208,000 newly created jobs since the figure is exactly equal to the new jobs created in the five years ended with 1955, and the estimate does not take into account the industrial and commercial expansion that will be encouraged by the completion of the Cal-Sag Channel widening and the St. Lawrence Seaway project.

The other 305,000 jobs will become available with the retire of older workers. This estima based on the presumption that workers will retire upon reachi

The potential effect of the C and St. Lawrence projects, sche for completion in 1959, is st dous. A grand total of 890,000 jobs may be created, directly or rectly, over a period of years by projects. And this many new d support an added population)00,000 persons.

ere are 15,000 acres of land able for industrial development e Lake Calumet-Gary-Calumet- rea. Much of it will have deep or barge frontage, making it attractive to industries that port large quantities of bulk rials, such as the steel industry chemicals. With this land fully pied, jobs would be provided for 00 people directly and for an- 450,000 indirectly, the Chicago iation of Commerce and Indus- as estimated. In addition, jobs tly connected with water trans- tion may rise to 40,000 from a nt 3,000 and another 100,000 jobs may result from enlarged rt and import operations of facturers, wholesalers, retailers, s, insurance companies, freight rding companies, packaging anies, custom house brokers, many other types of business

re than 78 per cent of the jobs ning available in the 1955 to period will have to be filled by omers to Chicago, or in-migrants, because of an abnormally low internal growth of population represented by young people reaching working age. The marriage and birth rate during the depression years of the 1930's was extremely low. The depression babies are now coming into the labor force, but not in sufficient numbers to replace those who are retiring. It is estimated that only 109,000 of the 513,000 jobs will be filled by internal growth, leaving 404,000 to be filled by in-migrants.

Element of Elasticity

Ordinarily there is another element of elasticity in the labor supply, namely, the housewives who take jobs when demand for help is high. However, with the large number of women working at the present time, this source cannot be counted on for more than a small additional contribution to the supply.

The strongest demand in the next decade, percentagewise, will be for persons with high professional and technical training, for persons with managerial ability, for clerks and salespeople, and for skilled craftsmen and semi-skilled operatives. The U. S. Bureau of Labor Statistics looks for a 37 per cent increase in the number of persons in professional and technical occupations in the ten years ending with 1965; an increase of more than 25 per cent in clerical workers and salespeople, and gains of nearly one-fourth for craftsmen and operatives. The number of unskilled jobs will decline, the Labor Bureau forecasts, and the decrease in farm population will continue.

A survey conducted by the Chicago Association of Commerce and Industry produced information on the general nature of the job opportunities here. A questionnaire brought replies from 559 firms in the Chicago area, of which 243, or 43.5 per cent, were manufacturers; 127, or 22.8 per cent, were in wholesale or retail trade; and 189, or 33.6 per cent, were in other types of business. The 33.6 per cent segment was made up as follows: construction industries 4.5 per cent; transportation and public utilities 5.9 per cent; professional services 5.7 per cent; service industries 9.1 per cent, and the remaining

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8.4 per cent in finance, insurance and real estate.

The 559 firms employed a total of 510,882 persons, of whom 140,192 were women. The sample was heavily weighted by the manufacturing firms with 331,463 workers, or 64.9 per cent of the total, as compared with 52,683, or 10.3 per cent, employed by reporting firms in wholesale and retail trade, and 126,736, or 24.8 per cent, by all other firms. The importance of the large firms in the employment picture in Chicago is indicated by the fact that only 95 firms, or 17 per cent of the total number that replied to the questionnaire, accounted for 426,159 of the 510,882 employes. Each of these 95 firms employed 1,000 or more persons.

Three hundred and thirty-two firms, or 57.6 per cent, hired female clerical help and office workers last year. For many companies the workers hired in this classification far outnumbered any other type hired. Eighty-eight companies reported that as much as 60 per cent of their labor requirements were filled in the female clerical and office worker category.

Male clerical and office workers also were in broad demand, with 273 firms, or 48.8 per cent of the total, indicating they hired men to fill jobs of this type. However, more than half of these firms said that the male clerical and office workers represented ten per cent or less of their hires.

Custodial and unskilled men were hired by 52.4 per cent of the firms in the sample, but only 18.4 per cent hired women for these jobs. Male managerial and supervisory workers were hired by 220 firms, or 39.4 per cent of the total, and 37.4 per cent hired sales force personnel. Thirty-six per cent hired male engineering and professional workers, and 34 per cent hired male machine operators and craftsmen.

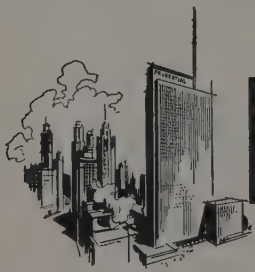
Seven Categories

The sample showed that while male workers were employed in all seven occupation categories, few firms hired women except as clerical, office, custodial and unskilled workers.

Three-fourths of the manufacturers with 1,000 or more employes and 63 per cent of all the reporting manufacturers said they needed more help. In the wholesale and retail trade, additional help requirements
reported by 59 per cent of the
and among all other firms 64 per
reported that they would have
to hire additional persons.

It was inevitable in a perio
growing job opportunities that
ployers would be forced to em
persons lacking to some degre
experience, training or other qu
cations. This lack was most prev
among manufacturing firms.

The great majority of the
panies responding to the survey
vide training for their wor
Seventy-six per cent of all the
panies, and 81 per cent of the m
facturing firms, provide on-th
training. In-plant training, w
would generally be in the for
supervised courses in work per
ing to the firm's operations, is
by 38 per cent of all firms an
per cent of those engaged in m
facturing. A third type of trai
apprenticeship, is offered by 30
cent of all the companies an
per cent of the manufacturers. T
ty-seven per cent of all the repo
firms and 33 per cent of tho
manufacturing provide the o
tunity for additional training in



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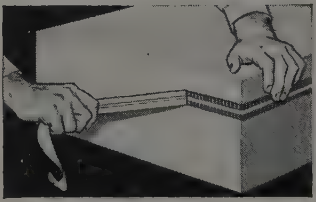

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area educational institutions.
ne majority of the firms, 311 to
xact, reported that they expected
ncrease their working force in
, and only seven indicated a pros-
ive decline as compared with
. Approximately two-thirds of
e expecting an increase estimated
it would amount to 10 per cent
ss, while 72 firms looked for in-
ses of 11 to 20 per cent.
ooking farther into the future,
employers said they expected to
more people on their payrolls
960 as compared with 1956, and
six expected a decrease in their
ing force. Eighty-two companies
ated an increase of between 11
20 per cent, and 63 said they
ed for an employment rise of
een 21 and 40 per cent.

New Labor

here will the in-migrants come
to fill the jobs that Chicago
s? During Chicago's rapid
th in the nineteenth century
the first 30 years of this century,
labor was supplied largely from
flow of immigrants from other
tries. Between 1900 and 1930,
19 million people entered the
ed States, including many skilled
ers and craftsmen. Since 1930,
igration has been slowed to a
le, not because residents of other
tries are less eager to come here
because legal blocks have been
in their way. With immigration
ed down, the 404,000 job oppor-
ties for newcomers to Chicago
have to be filled for the most
by workers who find these jobs
attractive than those in other
of the country and its terri-
s. One excellent source of work-
will be the farm. The United
s government estimates that the
ber of farmers and farm workers
decrease by 15 per cent in the
1955 to 1965. A large propor-
of these will migrate to large
strial centers such as Chicago.
icago also draws many workers
Northern and Southern Illinois,
other parts of the Midwest,
the South, and from Puerto
. The Chicago Association of
merce and Industry survey dis-
d that in 1956 more than 28 per
of all the reporting firms hired
ns from southern states, 11.8 per
hired workers of Puerto Rican
Mexican origin, 14.8 per cent
ired workers from Southern Illinois, 19 per cent from Northern Illinois, 20.6 per cent from other Midwest sources, and 11.6 per cent of the companies obtained workers from other areas.

While 28.4 per cent of the firms hired in-migrants from southern states, the job opportunities for these people were much more numerous in manufacturing plants than in other categories of employment. Forty-six per cent of the manufacturing firms indicated that they hired workers from the South, as compared with only 15 per cent of the firms in wholesale or retail trade and about 15 per cent of "other" types of firms. This wide difference indicates that manufacturing organizations are finding in-migrant labor from this area more suitable to their needs than is the case with non-manufacturing firms.

Illustrative of the sort of expansion that is taking place in the Chicago Metropolitan Area and will require large numbers of workers are some of the new plants of major companies. The new plant of the

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Automatic Electric Company will employ 7,500 when it is opened, and shortly thereafter is expected to employ 10,000. Most of the original 7,500 will move with the company from its present location in Chicago. The big Ford Motor Company blanking and stamping plant in East Chicago Heights, employing 4,000, started from zero and accumulated an adequate working force in six months despite the high level of employment in the area. Another example is the 1.5 million square foot plant of Caterpillar Tractor Company in Aurora, which will employ three or four thousand when it is completed.

In the past two years $1.1 billion has been invested in plant facilities and another $1.5 billion in machinery and equipment in the Chicago Metropolitan Area. These were record-breaking years, as indicated by the fact that during all of World War II, only $1,166,000,000 was invested in plant facilities here, not including machinery and equipment, and that was the largest investment in such facilities in any area in the entire country.

Chicago's ability to attract new workers is enhanced by the virtually unlimited opportunities for the individual to obtain training that will enable him to qualify for better jobs. This applies over the entire range of employment from skilled labor to the highest levels of the arts and sciences.

The public school system maintains vocational schools with both day and evening classes. Some unions provide for apprentice training, and there are many privately operated trade schools. At the professional level, Chicago's universities and technical schools enable the student to obtain the maximum that educational institutions can offer. The Illinois Institute of Technology, with day and evening classes, has the largest enrollment of engineering students in the nation. The city's universities cover the entire educational range, including medical, dental, law and other fields of knowledge, and some offer correspondence courses. For those who prefer to educate themselves by reading, Chicago's libraries can supply every need.

The companies responding to the survey gave high ratings to the tr
ing provided in Chicago's educati
institutions. Of the 215 firms that
experience with graduates of Chi
engineering colleges and univ
ties, 46 per cent stated that the tr
ing these graduates had received
excellent and 51 per cent rated
training as "good." An even la
number of companies, 245, repo
on liberal arts graduates, with 34
cent rating their training as exce
and 57 per cent as good. Vocati
high school training was rated
or excellent by 66 per cent of
firms.

Public Works

(Continued from page 37)

of Chicago, Cook County and
state established a priority syste
speed construction of the seven
vital arteries in a comprehensiv
pressway program, described
where in this issue. Feeding
expressways and providing esse
intra-city thoroughfares and del
access are over 3,600 miles of st
and almost two thousand mil

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ys. Street improvements, includ- construction, re-paving, lighting traffic controls on more than 500 es of arterial streets, plus the city's re of the expressway program, ng this aspect of the current five- r capital improvement program nore than $320 million.

he preparation of long-range ital improvement programs like- e was adopted in 1946, permitting approach whereby all programs proposals can be evaluated, allo- ed priorities and financed. One ilt of this method is that Chicago oys the lowest per capita long n debt of any American city of r a million population; despite startlingly ambitious public works l urban renewal projects.

year after initiating its attack parking and traffic congestion, cago launched an all-out fight inst blight in its older neighbor- ods. With the urging of city busi- s and civic leaders, in 1947 the e enacted enabling legislation ler which the Chicago Land arance Commission was organized l granted $10 million. Chicago ers approved a $15 million bond issue for slum clearance, and two years later the federal housing act provided federal grants for two-thirds of the costs of such redevelopment projects, with local agencies to supply one-third.

"The Commission has 13 projects in progress," reports Phil A. Doyle, executive director, "totaling 660 acres, which will provide space for 8,500 dwellings, scores of light industrial plants and facilities for parking thousands of automobiles. We also have several projects in the planning stage."

Lake Meadows

The first and best known of the Commission's projects is Lake Meadows, a 2,030-apartment development built by New York Life Insurance Company. Five 12-story structures are completed and occupied, as is the shopping center, and four 21-story buildings are under construction. Land acquisition was completed in 1954.

All clearance areas combined, those of the Commission, the Chicago Housing Authority, and those required for public improvements like expressways (not necessarily blighted) add up to approximately five square miles which have been or are in the process of being redeveloped. Of this, some 3½ square miles were indisputably blighted.

A Chicago Plan Commission study estimated that 23 square miles in the central area could benefit by redevelopment, and that for ten square miles of this total there could be no solution but total clearance. If the current rate of clearance of approximately a square mile each year can be maintained, Chicago will have eliminated its most serious blight by 1964. Substantially all of the central area now labeled blighted should be redeveloped in two decades.

Director Doyle cautions, "The magnitude of the work ahead is readily apparent if it is thought of in terms of the number of families that must be relocated, the number of buildings that will have to be demolished, the time required to accomplish the rebuilding program and the hundreds of other problems involved. . . . At the same time we are confident that if we maintain our current

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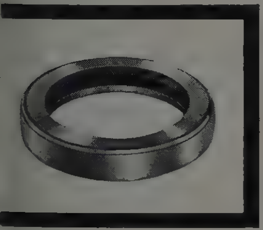
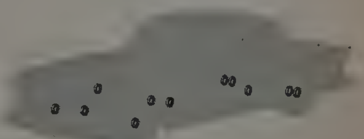


This silhouette drawing of your car shows the locations of some of its more important oil seals.



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rate of attack on the problem of blighted areas, there will be an enormous improvement in the city within the next 15 or 20 years. . . . I can foresee a new near south side and a greatly rejuvenated west side, say, by 1975. There will be great improvement on the near north side, too."

Chicago's newest prescription for rejuvenating its older neighborhoods is the Community Conservation Board, established after passage of the state Urban Community Conservation Act in 1953. As its name implies, the purpose of the Conservation Board is to re-design basically sound neighborhoods to preserve good structures, eliminate those it is impossible or uneconomic to rehabilitate, and provide for improved community facilities, such as schools, recreational areas and traffic patterns.

The Conservation Board of three members and a commissioner functions through its staff and through local Conservation Community Councils of nine to 15 members appointed by the mayor. Neighborhoods may be designated for conservation after public hearings, whereupon the planning may proceed, Here, too, if plans are approved by the federal Housing and Home Finance Agency, grants on a two-for-one basis may be obtained.

Four Chicago neighborhoods have been designated for conservation, and discussions are under way with community groups in 26 more. First area to win a program was Hyde Park-Kenwood, on the city's southeast side adjacent to the University of Chicago. Two sites totaling 47 acres previously had been approved by Land Clearance, and a proposal for a privately financed $15 million housing and shopping development on the site was approved this spring (1957).

Conservation Program

The $45 million conservation program for Hyde Park-Kenwood would dovetail with the clearance and development project and would seek to renew over 900 acres, from 47th to 59th streets, and from Cottage Grove avenue to the lake. Three thousand structures are involved, all but 178 of them residential, housing almost 64,000 persons. A little m
than five thousand dwelling u
would be cleared, and two thousa
new ones would be built. Parks a
playgrounds, schools and school ad
tions, widened thoroughfares a
changed traffic circulation, wo
aim at halting further deteriorati
Armed with Chicago's new Hous
Code and its own considerable p
ers, further strengthened by 1
amendments to the state conser
tion act, the Board believes it
place Hyde Park-Kenwood firmly
the road to the future. Federal fu
for advance planning have been a
cated for the program, and f
plans are expected to be ready
submission this summer.

A smaller, 237-acre neighborh
on the near west side also has secu
a federal loan grant for advance c
servation planning. Three pu
housing projects in the vicinity h
eliminated a sizeable number
blighted structures, and the $4.5 m
lion conservation effort will atten
to capitalize on this beginning
up-grade the entire area. The con
vation designation runs from C
gress street to Roosevelt road,

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n Morgan street to Ashland nue.

pplications for advance planning ds for two other large areas, Lin- Park and Englewood, also have n submitted by the Board. The coln Park work will cost $43.6 lion and cover 1,008 acres from ersey parkway south to North nue, and from Lincoln Park west Clybourn and Sheffield avenues. preliminary survey revealed that r a quarter of the 28,907 dwelling ts in the area are substandard. e area houses 84,000 persons and haracterized by sharp contrasts be- en Gold Coast apartments and dential hotels near the park and er, often illegally converted struc- es in other sections.

nglewood has tackled its own servation efforts through the ener- ic "bootstraps" operations of its thtown Planning Association and glewood Business Men's Associa- n. Together, the two groups have rted area residents and city agen- s to action. Some of the results lude demolition of 150 dilapi- ed buildings, obtaining of three v schools, a new $40 million sewer installation, new street lighting, a new police station and court room, and hundreds of minor improvements, such as removal of abandoned cars and better sanitary services.

Advertising Campaign

Heartened by six new municipal parking lots near the busy intersection of 63rd and Halsted streets, the business men have responded with a $100,000 advertising campaign and rescued their shopping district from threatened doldrums. The Englewood conservation project, which would be the nation's largest, would cost an estimated $52.5 million, with most of the funds concentrated on 1,383 acres bounded by 55th and 75th streets, Bishop and State streets.

Other aspects of Chicago's rebuilding are being worked out by specific committees, authorities and commissions, to all of which the city's zealous industrial and business leaders contribute time and energy. The Metropolitan Fair and Exposition Authority, headed by David L. Mayer, Jr., president of Maurice L. Rothschild, has completed traffic, architectural and engineering surveys of the several sites suggested for the city's new convention hall. With power to issue bonds, acquire land and construct the center, and with partial financing available through the city's share of a state pari mutuel tax, the Authority believes a site will be selected and ground broken this year.

The Fort Dearborn Project proposes a $288.1 million rebuilding program for 54 acres of Chicago's near north side, extending from the north bank of the Chicago river to Chicago avenue, and from State and Rush streets westward to the river's north branch and Wells street. A private proposal, the plans have been developed by leading Chicagoans as a public service, with Earl Kribben, vice president of Marshall Field and Company, serving as director.

Fort Dearborn's sponsors earlier this year requested the Chicago Land Clearance Commission to supply 21 acres between Chicago avenue and Ontario street, State and LaSalle streets, for clearance and residential redevelopment. From 1,500 to 2,000 dwelling units, or roughly a third of the 4,592 units proposed for the en-

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tire project, would be accommodated on this site.

Other proposed land uses, in addition to schools, recreation and community facilities, would include a commercial-institutional area, a commercial-light industry area, a heliport, parking, shopping, and a plaza for several contemplated government buildings. The Public Building Authority of Chicago has been created as a potential means for acquiring land and erecting the suggested government structures.

Central Area Committee

Another volunteer group of Chicagoans, headed by Holman D. Pettibone, chairman of Chicago Title and Trust Company, have formed the Chicago Central Area Committee, aimed at a bold and complete face-lifting for the downtown area. Among the committee's suggestions are the extension of Grant Park, expansion of the Randolph street theater district, a new hotel on the west side of the Loop to serve existing and proposed railroad terminals, recreational areas along the Chicago River, etc.

Citing the growth of America's major cities into dominant regional centers, Randall H. Cooper, the Committee's executive director, declares:

"The strength of each city will always be marked by the strength and vigor of its central area — the heart of a whole region. As the economic heart of Mid-America, Chicago is on the threshold of a great, new commercial development. During the past few years we have experienced a tremendous growth in our industrial development, whereas the commercial part of the city has remained more or less constant. I feel that Chicago will continue to grow industrially, and at the same time, the achievement of many of the plans now under way, particularly as they include mass transportation, will result in a greater development of the city's commercial area."

Hammering out proposals for railroad terminal consolidation is the Mayor's Advisory Committee for Consolidation of South Side Railroad Terminals. Five railroad and five business executives are teamed with the public works commissioner and the president of Illinois Institute of Technology on this project, which would free a large south-Loop a
for redevelopment.

County and suburban gove
ments, too, share in the surge of
newal and improvement progra
The central redevelopment age
for Cook County is its Housing
thority, which has programs un
way or in the planning stages in
operation with Robbins, Maywo
Skokie, Glenview, Chicago Heig
and East Chicago Heights. Activi
vary from acquisition of "dead"
tax-delinquent land for assembly a
sale to developers, as in Skokie,
clearance and redevelopment
blighted sections, as in Robbins. T
Authority also manages 187 pub
housing units in three suburbs, a
188 middle-income rental units
naval personnel and veterans in t
communities.

In addition to its $90.7 million
pressway and superhighway progr
and current capital improveme
Cook County is planning anot
$64 million in such public works
construction of two new county
pital buildings, rehabilitation of
Oak Forest institutions for tube
lar and chronically ill patients,
provements in the county jail, rep
and replacement of County Build
equipment, and rehabilitation of
Family Court and the Arthur J. A
Home for Children.

Incalculable Costs

The costs of all of this rene
effort are incalculable. Yet Chica
ans are optimistic. A city which
twice in its history raised its gra
involving the wholesale hoisting
its entire commercial area, is li
dismayed by a rebuilding progr
that may run to several billions
dollars. The most that the more c
servative business and civic lead
will concede is that the renewal
take a few years to accomplish.

Says Gen. Richard Smykal, C
servation Board Commissioner:

"It seems reasonable to pre
that a generation hence, obsolete
deteriorated buildings will have b
removed or rehabilitated, and
their place will be modern struct
designed to carry out their prim
functions more efficiently, whet
they be residential, industrial,
cantile or institutional in charact

Citing the benefits of re-desig
neighborhoods and public impr
ments, Gen. Smykal concludes,

hese factors, and many others, contribute towards making Chi- a more pleasant place in which ve. This constitutes urban re- l and community conservation."

hind, or more accurately below hining new apartments and of- nd public buildings under con- tion or planned, a less glamor- but essential form of public ovement proceeds. An on-going program is the extension and rnization of the water and sewer ms. Since 1947, $56 million have spent on new sewers, and an- $30-$35 million will be spent 960. Industrial development and ential growth around Lake Cal- and the widened Cal-Sag Chan- will place new and heavier nds on these facilities. Accord- o George L. DeMent, Commis- r of Public Works, the end is nere in sight, "but we're going to at it until it is completed."

e city's water system, similarly, rgoes constant expansion. Lake igan, to the casual observer, ap- like a bottomless reservoir from n Chicago may dip at its pleasure. Indeed, Chicago's location on a huge, fresh water lake is the envy of cities the world over. But the water must be filtered, chlorinated, fluoridated, pumped and piped to meet modern standards and send it sparkling from several million faucets.

Water Supply

Chicago supplies water not only to its own citizens but to 80 per cent of the metropolitan area's population, or approximately 4.4 million persons. By 1980, predicted population increases may swell the city's requirements by 11 per cent, and those of its suburban customers by 200 per cent.

The $80 million Central District Filtration Plant now being built will be completed by 1961, and all water supplied by the Chicago works will be filtered. Improvements to pumping stations, extensions of mains and related construction costs bring the current water improvement program to $154.5 million.

The bridges, without which Chicago could not exist, grade separations and overpasses, a new $20 million incinerator program, new police and fire stations, branch libraries — all the municipal appurtenances of urban living — boost the public works program to an estimated $675 million over the next five years. Some $725 million already have been expended on such improvements since 1947.

Coordination of these multiple programs falls to the new city Department of Planning, organized on the foundation built up over many years by the Chicago Plan Commission and recently made an integral part of the city government. Although its functions are advisory, referral of projects for planning review is mandatory, and Commissioner Ira J. Bach enjoys full cabinet status.

The department staff has been reorganized into five divisions, covering zoning, research, general planning, coordination and capital improvements, and Commissioner Bach serves as chairman of the city's important interdepartmental committee on capital improvements. The

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first major project will be the completion of the long awaited general or master plan for Chicago to guide future development. The new department already has made an invaluable contribution to sound planning with its recently issued study, "The Calumet Area of Metropolitan Chicago."

Focused on the area from Chicago's 79th street south to the Cook county line, and from Joliet on the west to Burns Ditch just east of Gary, Ind., the study details the potential impact on Chicago and the whole metropolitan area of expanding Calumet industry, port and waterway development, transportation, and population, labor force and housing.

The study's timeliness and significance for Chicago alone can be seen in the fact that three-fourths of the remaining vacant industrial land within the city of Chicago itself lies in the vicinity of Lake Calumet and the Cal-Sag Channel. Industries dependent on low cost water transport, such as bulk chemicals, will benefit by the juncture, peculiar to Chicago, of 7,000 miles of inland waterways with Great Lakes and overseas shipping routes. The study forecasts continued growth of steel production, in which the Calumet area now leads the western world, and in petroleum and chemicals, as well as metal working, machinery, transportation equipment, bulk food processing and fabricated metals.

Vacant Land

Similarly, the area holds considerable vacant land suitable for residential construction, which is beginning to open up now in anticipation of completion of the Southeast expressway, the Calumet Skyway toll bridge and related traffic improvements.

Much of Chicago's current capital improvements program is scheduled for this south section of the city, and the Calumet study can be expected to result in even greater concentration of effort. Already planned are 16 new grade separations and overpasses, resurfacing of 26 streets, and widening of eight more, traffic flow improvements at 21 intersections, 15 new schools, 12 new parks or additions to existing ones, six new water mains and two pumping stations, sewers, street lighting and all the rest of the public facilities necessary to
accommodate the new "city wit
city."

To measure the growth th
coming and permit intelligent
ning for it, the Calumet study h
cross city, township, county and
state lines, dramatizing anew th
evitability of area-wide, or metro
tan perspective in modern city
ning.

Sanitary District

Chicago pioneered in such m
politan planning with the estab
ment in 1889 of the Metropo
Sanitary District of Greater Chi
The District successfully reverse
flow of the Chicago River to
guard the water supply, drainage
health of the entire area. Hon
by the American Society of Civi
gineers, in cooperation with Rea
Digest, as one of the "seven wor
of American engineering," the
trict today serves 500 square
with a population of some 4.7
lion, and handles industrial
equivalent to another 3.5 mi
persons.

Chicago's second achieveme
metropolitan planning was th
ganization in 1923 of the Ch
Regional Planning Associatio
professional service group, the
ciation has helped formulate
ning standards and coordinate
efforts of 1,800 local governm
units in 15 counties in the Ch
region, including three counti
Wisconsin and three in Inc
Model zoning ordinances, ade
dedication of land for future
way improvements, standards fo
reational areas, and coordin
highway planning, are amon
many accomplishments. Dani
Burnham, Jr., son of the fa
author of the "Plan of Chicago
served as the Association's pre
continuously for more than 30

Today the Chicago area is
another giant step in metrop
planning through the Northe
Illinois Metropolitan Area
Governmental Services Comm
created by the state legislatu
1955. Under the guidance of
sentative Paul J. Randolph, its
man, and Leverett S. Lyon, exe
director, the commission thi
published its first report. The
to be followed by specific legi
recommendations, constitut

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haustive studies of three metropolitan services — water supplies, sewage disposal and storm water drainage. Also included are authoritative discussions by experts in each field of the metropolitan aspects of public education, health, welfare, medical care, transportation, police service and fire protection.

Possible Solutions

Although the Commission makes clear this first report is not to be construed as formal recommendations, the studies point up possible solutions to the problems they examine. The report on water supplies, for example, suggests that state legislation may be required to permit all comers among the suburban communities to purchase water from Chicago, at rates commensurate with their distance from and elevation above the lake. The section on police service suggests as a first step that consideration be given to consolidating the city and Chicago Park District police departments, and thereafter to establishment of police "districts" throughout the metropolitan area which would preserve local autonomy but insure thorough coverage.

The Chicago area may be a long way from a single metropolitan government, and there are many who remain unconvinced that such a government would be desirable. But, at the very least, the next several years will see considerable progress in metropolitan planning and in the adjustment of local government machinery to bring those plans to fruition. As Mr. Lyon concludes in his summary of the commission's report:

"The psychological, institutional, and legal factors involved in the problems of metropolitan area governments are such that caution as well as imagination is required to achieve sound progress. Both prejudice and lack of understanding exist, and political alignments must be considered. The issues, however, cannot be avoided. The rapidly increasing urbanization of the area makes it imperative that the city of Chicago, its neighboring municipalities and counties, and the of Illinois give continuing and orous attention to the governm problems which such urbaniz involves."

Schools

(Continued from page 43)

Outside the city limits, er ment increases have been pr tionately greater. In Cook Co public elementary and high sc and junior colleges student po tion has jumped to 210,605, pared with 144,509 in 1952. 1955, new buildings costing $95 lion have been occupied, an 1958 another $50 million in structures will be completed.

Increase of 58 Thousand

Noble J. Puffer, Cook Count perintendent, says population jections indicate enrollment increase another 58,000 by Much of the growth arises from home construction, as reveale other studies which show tha every new house occupied, ⅔ child is ready for public schoo rollment. By the end of the first of occupancy, the figure rises t proximately 1½ public school dren per home.

Cook County schools expect heaviest boom at the county's end, in areas accessible to the port and canal developments. Supt. Puffer sees greater em in coming years on vocational ing for Calumet industrial oc tions. He predicts that some tional classical high school co such as Latin, will disappear, e where required for college pr tion.

Other nearby counties also sizeable school growths. County, according to superinte Verne E. Crackel, has experie 41 per cent increase in the pa years, to its present enrollme 25,300. He expects continu creases of eight to ten per cent for another ten years.

Kane County's 31,636 school lation has been growing at th of about 2,000 a year, a pa pected to continue indefinitel R. B. Mades, county superinte DuPage County estimates i need 150 new classrooms a ye several years to come, accord

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DeShane, county superinten- t, who reports current enroll- nt is 48,979.

ake County, Ind., with 14,650 dents in the county schools out- Gary and Hammond, looks for big push to come with comple- of port and Cal-Sag channel rovements. Superintendent Wil- E. Purcell reports the develop- nt of vacant land into residential munities already has begun. At north end of the metropolitan , Lake County, Ill., also expects vy home construction on vacant d and attendant school popula- boosts. "Lake County will be one big residential district in years," predicts Superintendent C. Petty, whose 44,766 enroll- nt jumped 3,600 in the past year.

he building programs in all of e suburban areas can best be ribed as feverish. At the ele- ntary level, branch or "feeder" ols fast are becoming the rule. Skokie, for example, which has wn from a population of 7,500 the close of World War II to e 34,000 today, five primary de branch schools serve the main, eight-year schools in four out of village school districts. Second, dual campuses have been con- cted in many of the high school ricts, such as at Arlington ghts, Niles, Des Plaines, Proviso, range, Leyden and Thornton wnships.

Parochial Schools

arochial schools in the Chicago share the mounting school load. Catholic Archdiocese of Chi- reports that enrollment in its elementary and 90 high schools been growing at the rate of 12,- 13,000 new students a year to h the current 315,000. The Arch- ese establishes six or seven new ols each year and constructs ad- ons to dozens of existing school dings. The projected number of duates from elementary schools pected to reach 34,342 by 1963, pared to 24,679 this June.

utherans maintain 123 elemen- schools, serving some 17,000 lren in the Northern Illinois rict. The three Lutheran high ols in Chicago expect an enroll- t this fall of 2,345. The newest, theran High North, which ed in 1953, dedicated a $600,000 addition, with 12 more classrooms and other facilities, this spring.

Eight elementary schools, including one for handicapped children, and three high schools, serving some 4,000 children, are supported by the Christian Reformed and Reformed Churches.

The Jewish faith offers supplementary education at the elementary and nursery school levels for 7,600 children. Another 275 are enrolled in its High School of Jewish Studies.

The lowered birth rates of the depression years, on the other hand, have afforded Chicago-area colleges and universities a temporary respite from the bursting classrooms of GI training days. College-age population in the area has dropped about 60,000 as compared with 1950, and full-time college enrollments in Illinois rose only 2,000, from 95,000 to 97,000, in the years from 1950 to 1955.

But when the boom hits college campuses, it will hit hard. The 18-24 year-old group in the Chicago area will jump an estimated 20,000 in the 1960-61 school year, 33,000 the following year, and 23,000 the next.

Added to the predicted population growth is the fact that the colleges and universities, even more than the elementary and secondary schools, must carry the lion's share of the new need for more and deeper education.

The Illinois Higher Education Commission, established by the legislature two years ago to explore these problems, reports that full-time enrollment can be expected to reach 221,000 by 1977, a 133 per cent increase over 1950. Total enrollment, including part-time students, may leap to 344,000, a 141 per cent rise over 1950.

Larger Roles

With few exceptions, Chicago area institutions of higher learning are busy with blueprints and curriculum plans to fulfill their larger roles over the next two decades and beyond.

One of the first to be revealed, and one of the most far-reaching, is the ambitious $138 million development program announced by Northwestern University. Significantly, the financial goals for faculty and for student assistance exceed those for new buildings on the Evanston campus. President J. Roscoe Miller points out that the real income of other groups has risen as much as 80 per cent in recent years, while

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that of college faculties has suffered a five per cent decline.

Northwestern's program calls for a $35 million general endowment to improve faculty salaries; $5 million for twenty new endowed professorships; and $2 million to bring to the campus small groups of outstanding scholars who will be free to pursue research and writing. Another $9.5 million is sought for increased scholarship and fellowship aid for students. "Good teachers, good students — these are the first two considerations in our long-range program," asserts President Miller.

New structures, maintenance and equipment for the Evanston campus would total $42 million. Another $45 million would be shared by the University's Chicago medical center, law library, and its several research and clinic facilities.

Total enrollment has been running about 18,000 per school year. Maximum enrollment "for the foreseeable future, consistent with standards and financial ability," is pegged at about 21,000: 7,000 undergraduates and 1,000 graduate students on the Evanston campus; 2,000 daytime students on the Chicago campus; and about 11,000 in evening courses on both campuses.

DePaul University is at work on a $5.5 million expansion program, covering faculty salary improvement and student aid, four new buildings and enlargement of its Loop facilities. First of the new buildings to be completed was Alumni Hall, a gymnasium-auditorium, and new downtown quarters have been achieved through the gift of the Kimball Building, at Wabash avenue and Jackson boulevard. A new library, liberal arts annex and science research building remain to be constructed. Present enrollment is 7,701, of which 6,482 is in the downtown divisions. The Kimball Building, now known as the Frank J. Lewis Downtown Center, can accommodate 12,000, according to DePaul's president, the Very Rev. Comerford J. O'Malley, C.M.

Loyola University expects enrollment to grow from its current 8,579 to 14,000-15,000 by 1970, and work on new facilities is under way. A $500,000 fund is being raised for additional professorships. A new $1.3 million dormitory houses students, and a newly purchased remodeled dormitory for wo is located near the Lewis To campus. Some $4.7 million has b contributed or pledged for a medical building, and a new w is planned for the dental sch Other plans include expansion the Lewis Towers student lou and cafeteria and construction o student recreational center. Du bach Hall also will become availa to the university when Loyola Ac emy high school moves to its Wilmette campus this Septem

Long-range Program

Roosevelt University, Chica youngest, has announced a $16 lion long-range program, and an mediate effort to obtain $1.8 mill for priority needs over the n three years. Enrollment now sta at over 4,000 (9,300 including n credit students), and is expecte reach 6,000 by 1960. The scho housed in the historic Auditor Building and hopes ultimately restore the famous Auditor

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's use. The Banqueting Hall has
n restored and dedicated as the
dolph Ganz Recital Hall, in trib-
to the president emeritus of
cago Musical College, now part
Roosevelt.

llinois Institute of Technology
reached the half-way mark in its
million campus redevelopment,
h 20 new structures completed
e 1943, and 25 more planned.
e architecturally unified campus
10 acres was designed by Ludwig
es van der Rohe, and has grown
n the original seven acres
ough a slum clearance program
ch will be completed within two
rs.

IT's total enrollment, for both
and evening classes, runs close
8,000, a figure that is expected to
ble in the next 10-15 years. Fu-
e structures will include build-
s for liberal studies, chemistry
earch, mechanical engineering re-
ch, research administration, civil
l mechanical engineering, a stu-
t union and auditorium, library
l administration, fieldhouse, gym-
ium and swimming pool, student
mitories, fraternity chapter houses, and apartment and row housing for faculty and married students.

The Chicago Undergraduate Division of the University of Illinois serves 3,500 freshman and sophomore students in its rented quarters at Navy Pier, and hopes to expand into a full-fledged $27.5 million campus here. Chicago's need for more port facilities will force the school to vacate the Pier by 1963. With the help of the Chicago Plan Commission and Real Estate Research Corporation, U. of I. trustees selected as their first choice for a new site the 300-acre tract of farm land 11 miles west of Chicago's Loop known as Miller Meadow, owned by the Cook County Forest Preserve District. Decision on a permanent Chicago branch rests with availability of the site.

Master Campus Plan

At the University of Chicago a ten-year, $33 million development program is underway, with architect Eero Saarinen retained to design a master campus plan for integrating new, modern structures with the existing Gothic buildings. Under construction are a women's dormitory, a low temperature laboratory, and complete remodelling of a hospital building into a laboratory for research in the biology of reproduction. Planned are married students' apartments, a new law school adjacent to the American Bar Center, additions to the Laboratory Schools, and a men's dormitory. Future goals include a new general library, two more hospitals and a structure for the School of Business and Industrial Relations Center. Expansion of the current 5,329 enrollment at the south side campus is pegged for a maximum of 10,000, which the U. of C. believes will be reached in ten years.

The downtown college of the University of Chicago, with a student body of almost 5,000, will launch a full four-year degree program this fall. Now occupying three floors in the Central YMCA building, the college expects that growing enrollment will require larger quarters.

Most of the numerous smaller colleges and universities in the Chicago area also have expansion and improvement programs. Evanston's National College of Education plans

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another dormitory, remodelling of the present one, and a new Laboratory School, to total approximately $1.1 million. Current enrollment of 725 is the largest in National's history, and 850 is regarded as the desirable maximum. George Williams College, which primarily trains leaders for the Young Men's Christian Association, looks forward to a new dormitory and a new science building to handle an expected growth to 500 students by 1960 from the present 320.

Salary Increases

Lake Forest College is embarking on its second century this year with plans for a $10.5 million development program. Of this, $200,000 would go for faculty salary increases and for 20 distinguished professorships; another $500,000 would enlarge such community services as concerts, lectures and evening classes. The balance would be expended on new buildings, such as a hall of science, library and auditorium and fine arts building. Also located in Lake Forest, Barat College of the Sacred Heart is constructing a new $650,000 dormitory.

Concordia Teachers College, River Forest, will launch its first master's degree program this summer, and expects continuing increase in its 730 enrollment. Building plans include a new dormitory and an addition to the science building. North Park College and Theological Seminary has a $3.6 million program, and immediate plans include a new gymnasium-auditorium and a library-classroom building.

Although the Illinois Higher Education Commission estimates private colleges in the state have 30,000 classroom vacancies, many of the Chicago area's excellent smaller schools have virtually reached capacity. For these, any future expansion plans await the practical possibilities of new quarters. Pestalozzi Froebel Teachers College, for example, with an enrollment of 400, occupies all the space now available to it in the building at 207 S. Wabash Avenue.

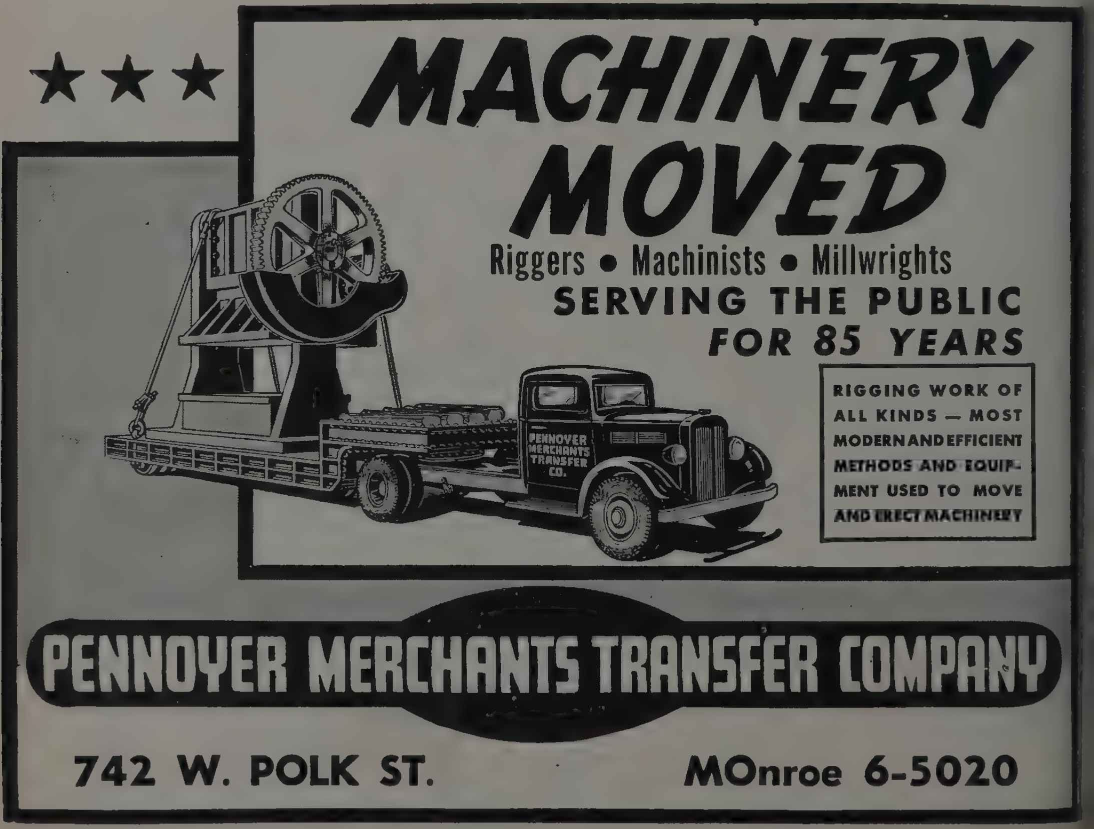
Elsewhere in the state, tax-supported institutions are at the bursting point. To relieve this pressure and also to provide more adequately
for the tidal wave of college studen
expected in three more years, t
Higher Education Commission r
ommends two proposals.

The first would provide state a
propriations for a minimum of 1,0
tuition scholarships of no more th
$600 each to permit students to
tend colleges of their choice. T
Commission's investigations indic
most scholarship recipients wo
select private schools.

Junior Colleges

The second step recommended
the establishment of 21 junior c
leges throughout the state, nine
them in the Chicago area. The s
gested sites in the vicinity of Chic
are Blue Island, Chicago Heig
Downers Grove, Elmwood Pa
Evergreen Park, Maywood, Skok
Wheaton and Winnetka.

Plans for still another Chic
Junior college are being worked
by the Central Y.M.C.A., which n
conducts a downtown day and e
ning high school, along with
numerous adult education activit
The Chicago Board of Educati



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hile these multimillion-dollar ding programs and suggestions new schools receive the major e of public attention, an equal ent is at work in the area of iculum planning.

he consensus among educators ears to be that highly specialized ing, by itself, cannot adequately e the man of tomorrow. The hey- of the narrow specialist appears e ending, if indeed it ever ex- l in fact.

his prognosis does not mean that ege students will learn less in major fields. What it does mean at they will be required to learn e in the subjects outside and be- l their specialties, particularly in liberal arts and humanities. It ns, too, that in the years to come increasing number of students seek advanced degrees. The Uni- ity of Chicago, for example, be- es its predicted enrollment of e 10,000 will be about evenly ded between bachelor and ad- ed-degree candidates.

Liberal Arts Program

Illinois Institute of Technology, h prepares more engineering stu- s than any other college or uni- ity in the nation, considerable en- and money have been expended trengthening the liberal arts pro- . The Institute recognizes "the easing social responsibilities of engineer and scientist," and be- es it has the obligation to "de- lp a well-rounded, thoroughly grated citizen." At the same time, ow requires a course in atomic ics for all engineering degree lidates, regardless of their spe- zation.

Northwestern, beginning this students in all of the seven un- raduate schools at Evanston will equired to take work throughout first four years in the natural social sciences, fine arts, litera- music, history, philosophy, ion, and reading, writing and king. A new program of liberal ation also is being developed in undergraduate division of the ol of business.

still another offensive against specialization, Northwestern is ching pilot studies in its medical ol to determine how to better integrate the humanities with professional education in premedical studies.

Beginning this fall, 75 per cent of the work of school of education seniors at Northwestern will be in liberal arts. At National College of Education, two-thirds of all requirements are in liberal arts.

Roosevelt University is expanding its programs in culture studies, teacher training and pre-professional training in the sciences. In the culture studies program, for example, students learn not only their elected language, but the culture of the peoples who speak it. In the college of commerce, more than a third of course work is devoted to liberal arts subjects.

This insistence on placing specialized curricula in the perspective of a broader and more fundamental education is well summed up by the Rev. Owen J. Quigley, C.M., dean of DePaul University's college of commerce, who says in part:

"Automation and atomic energy will usher in the new industrial revolution. This 20th century revolution

TO THE HORIZON AND BEYOND . . .

Since 1854, the Dun & Bradstreet organization, through the Chicago office, has played its part in Chicago's growth, by bringing together buyer and seller in a climate of mutual confidence.

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WE BELIEVE IN CHICAGO because the vision that will one day make her the greatest city in the world will carry us to new heights if we're worthy of her.

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must avoid the mistakes and errors of its 19th century counterpart . . . Its economy must be so organized and guided that the machine of this new era will remain the tool and the servant of man . . . The dignity of the human person has been given wider recognition in the last 25 years than at any previous time in the industrial era. If this recognition is to grow, its development must be directed by the moral precepts of the natural law. This is the greatest and most challenging responsibility of the schools, for it is they who are responsible in large measure for the moral as well as the intellectual formation of the business and industrial leaders of a new and revolutionary generation."

New kinds of classrooms, new school schedules and new teaching techniques will evolve to help educators present and students assimilate this greater learning. There will be more visual education, not only through increased use of television, in which Chicago has pioneered, but through wider use of audio and visual aids of all kinds — films, slides, charts, graphs, maps, diagrams, pictures — and they will be largely handled by projection. Prevailing use of automatic machines in the society at large will reduce the importance of learning-by-doing and enhance the values of speed and ease in learning-by-seeing.

Chicago's City Junior College has just concluded its highly successful first year of credit courses via television, and city high schools this spring taught physics to a selected group of 800 students over the same educational Channel 11, WTTW.

Year-Round Classes

The nine- or ten-month school year ultimately will be replaced by schools operating the full 12 months, and 24 hours a day, if necessary, to satisfy educational needs at all age levels. The desire for year-round classes already is evident. Free summer school courses, from the sixth grade through teachers' college, offered by the Chicago Board of Education in 1955, were so swamped that services had to be expanded almost 40 per cent in 1956 and will be still further enlarged this year.

The school building of the future will be on a larger site and more flexible in design. Supt. Willis fore-
sees high schools on well planned,
acre grounds, surrounded by rec
tional facilities, used by stud
during the day and by the com
nity after school hours.

Classrooms will have movable
titions, sound conditioning, ad
able lighting, all-season tempera
and ventilation controls. (The
columnless Crown Hall, at IIT,
been designed on just these pri
ples.) The blackboard will be
planted by a large television scr
perhaps eventually with indivi
viewers at each student's desk,
programs may originate in the c
room, the school building, or
where in the world.

No gadget, however, can rep
the teacher. WTTW's director,
John Taylor, emphasizes:

"Artful use of television m
that the program planners will
television to do the things it ca
best. It cannot conduct effective
cussion sessions." And he adds,
younger the student, the less e
tive television is in supplemen
and improving instruction."

New Teachers

It has been estimated that Ame
will need some 200,000 new te
ers each year until 1965, and th
the present rate of supply contin
the nation may be short a quart
a million educators by that time.
cago alone needs 1,200 to 1,500
teachers a year. Chicago's tea
recruitment and training prog
calls for enlargement of Teac
college facilities, including
north and west side locations
"teacher-emeritus" program aim
keeping in the schools educators
are eligible for retirement. Ag
sive efforts are made to attract
into the profession mothers w
children are grown, and others
hold college degrees and can qu
for teacher certification by taki
relatively small number of ed
tion credits.

An approach under considera
in some Chicago-area schools i
use of "teacher aids," similar to
"nurses' aids" in medicine, whe
nonprofessional assistants can
over certain nonteaching funct
such as supervising study halls
lunch rooms, taking attendance
An average of 26 per cent of a t
er's time at elementary and secon
levels is consumed by such nont
ing duties.

ggested by the Fund for Adement of Education, the use of professional assistants also would teachers to work with children nized in smaller groups and fante a more fluid arrangement of es according to ability and interrather than rigid grade levels.

ist such an experiment in a deless" school is being developed hicago's St. Xavier College, now s new campus at 103rd street Central Park avenue.

Xavier is the training college he Sisters of Mercy of the Chi- Province, who conduct some 60 entary and high schools. Under new program, being developed at adjacent Queen of Martyrs grade ol, children are grouped into units, such as primary, elemen- and secondary. Within these ps, each child is encouraged to ress at his own speed, and the ege believes most children will ble to graduate from high school 11 rather than the customary ears. A gifted child might be to save two years.

he St. Xavier experiment is sing considerable interest, and should spread to other educaal systems, it may have the furvalue of restoring to teaching of the dynamic excitement necy to lure new young recruits into profession. Says Chicago's Supt. is:

'eaching is the foundation proon. Without great teachers we have no great physicians, able smen, thoughtful writers, or ful craftsmen. If teaching fails to ct a fair share of our most gifted imaginative young people, the le fabric of our creative life will r. . . . Our children are our test possessions; their future, our est hopes. We place both into hands of our teachers."

Area Transport

(Continued from page 40)

s the tracks to go to the city ts. The CTA head does have amous plans for spreading out in r directions. He proposes to e a subway route under Wells or alle streets, another beneath son boulevard, and a tunnel for s under Washington street.

r the next 15 years, Mr. Gunlock programmed extension of the ewood L line into the Clearing

ALLAN PINKERTON - -
Founder of An Industry

In 1850 Allan Pinkerton started a private detective agency in Chicago, which was the beginning of an industry and what is today's internationally known Pinkerton's National Detective Agency, Inc.

Pinkerton's played an important role in law enforcement until after the turn of the century and were the Nemesis of the now glamorized outlaws, train and bank robbers, confidence men, thieves and safe burglars of that era.

The history of Pinkerton's has been colorful and their archives are filled with records of the pursuit of criminals until they were brought to justice.

The most important achievement of Pinkerton's however has been its adaptability to the ever changing needs of business establishments and individuals for detective and guard service. For over a hundred years these necessary needs have been met.

From a staff of three or four employees in 1850 the organization has grown to a staff of over 5,000 employees. It is still owned and managed by a Pinkerton — President, Robert A. Pinkerton, of the fourth generation.

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A. J. Audy Home Cook County	Motherhouse and Novitiate Franciscan Sisters, Wheaton
Package Delivery Station United Parcel Service	Housing Project No. 1 Chicago Dwellings Association
Deneen School Chicago Board of Education	St. Nicholas School Archdiocese of Chicago

Industrial District, installation of automatic signals and train controls throughout the L system, elimination of elevated curves, elevation and extension of ground level rapid transit tracks at the ends of lines, building of new stations, and other improvements. Just about achieved is a $15,000,000 modernization of CTA rolling stock and repair facilities. By the end of 1957 all except 70 of the old wooden transit cars will be gone and these will have been re-wired to make them safer. Next year the 70 also will be replaced with metal coaches. New buses are arriving in a steady stream, most of them with engines burning odorless propane.

Park and Transfer

Parking on the perimeter of the central business district or on the outskirts of the city, with a transfer to public transit, has been advocated and to some extent tried. The Chicago Transit Authority has established three free lots and one for which it charges a fee which is lower for those who pay an elevated line fare. The CTA will try more of the latter, which it calls "park-n-ride." It would like to encourage also what Virgil E. Gunlock, CTA board chairman, calls the "kiss-n-ride" customer. He is the man driven to an outlying L station by his wife.

Fringe Parking

Fringe parking does not attract as many users as it should because transit rides are not yet convenient enough to induce drivers to leave their cars and break their trips.

The six and eight-lane expressways, totaling 67 miles in length, originally were to have been paid for out of a $245,000,000 bond issue to be retired from the county's share of motor fuel tax funds. Only $40,000,000 in such bonds have been issued. The federal highway program now will be relied on to pay the costs boosted by inflation and added planning. The expressways qualify as part of the interstate highway system for which the U. S. government will handle 90 per cent of the cost. The remainder of the county bond issue, under present plans, will go into roads not eligible for federal help. Much of this work will be wit Chicago.

Current cost estimates for the pressways are:

Congress street – $152,000,000.
Northwest – $154,000,000.
South – $225,000,000.
Southwest – $113,000,000.

But Chicago is not relying enti on the CTA and the major expr ways to keep it mobile. The C Highway Department is designin system of junior expressways. Th if approved by the County Bo will be four-lane highways (two la in each direction) four miles ap Access will be limited. Service ro will take care of abutting propert

The State of Illinois has its $240,000,000 highway program, m of which will come into Chic The city is repaving, straighten streets and improving traffic con So also is the Chicago Park Dist which looks forward to extend Lake Shore drive to Evanston filling in space for it in Lake Mi gan.

Toll roads complete the su highway picture. The Illinois S Toll Highway Commission is furi ly pushing its 193-mile $415,000 network of northern Illinois t pikes. Although the schedule tight one as a result of delays ca by litigation, completion on tim January 1, 1959, is promised George L. Jackson, the commissi chief engineer.

Tri-State Tollway

The backbone of the system is Tri-State tollway, by-passing Chi in a semi-circle about ten miles and running from near the Ind line to near the Wisconsin bo It connects with free roads at ends. From this a North Illinois way will branch out as a continua of Northwest expressway, to R ford and South Beloit. An East- tollway will make a right angl carry the Congress street express westward to near Aurora. The la highway is intended to go on eve ally to the Quad Cities on the I line as either a free or toll road.

The Illinois turnpikes will b up to date as an atom laborat Most tolls will be automatically lected and electronically regist at a central headquarters. Pavem at the toll barriers will contain to melt away ice and snow. T outlying tollways should pro

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n-ride combinations. There will ide acreages in between pave- s at places where interchanges nade with expressways. These turned into parking lots would n inducement to suburbanites to that far and then get into the l transit trains using the express- median strips. The toll commis- is considering the idea. The is waiting to be shown that it bay.

icago, too, is rapidly building a oad, although technically this is idge across the Calumet River seven and a half miles of ap- hes. It will connect the South essway and the expressway sys- generally with the Indiana Toll at the border, 106th street and napolis boulevard. The $100,- 00 Calumet Skyway, as Chicago's turnpike is called, is designated bridge to get around a state law h prohibits a city from building ll road. The law permits toll ges and says nothing about the h of approaches.

d while explanations are in or- take care to avoid distinguishing ree roads from turnpikes by call- the former freeways. Both are ways. Any grade-separated high- with access so controlled that the rist can sweep freely along with- hitting cross traffic is a freeway. California freeways still would uch if tolls were collected on .

Federal Contribution

hese highway programs will go ugh to completion, especially that the federal contribution been so largely increased. What es next in the way of roads will nd largely on future recom- ations based on data gathered in Chicago Area Traffic Survey.

he survey is being conducted ntly from an office at 4812 W. ison street. Its director, Dr. J. glas Carroll, Jr., who did a simi- job for Detroit, declares that n the final reports are in late in , it will be possible to tell what portation facilities are now ed, and to foretell exactly the c effect of the opening of a new essway, the building of a store, e opening of an outdoor theater.

uch surveying has been done in nce of this study. Cordon counts the transportation used by all persons who enter the central business district on a given day. According to the 1956 traffic count, 136,268 came in by railroad, 10,493 in out-of-town buses, 19,752 in service vehicles and 39,899 in taxicabs. The private auto, however, is the biggest single carrier. Autos hauled 257,106 persons on the survey day. CTA subway and elevated trains carried 236,838, CTA buses 129,324, and the few remaining streetcars, 30,584. These figures add up to 860,264 persons coming into the Loop that day in May, 1956, when the count was taken.

Helicopter Bus

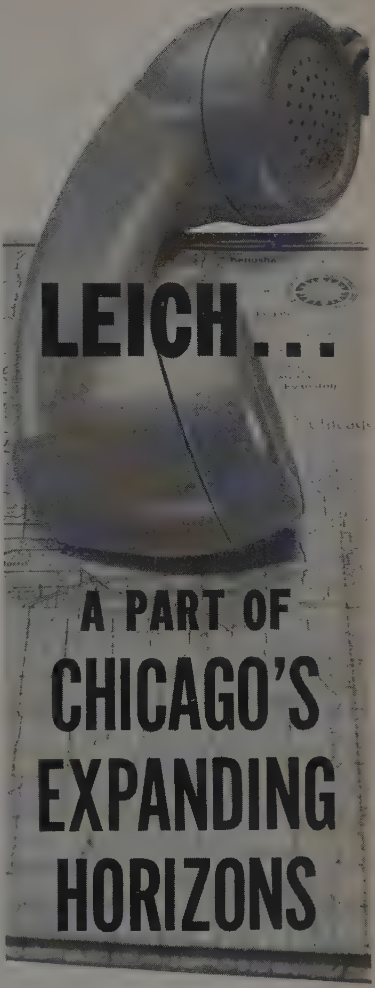
The 100-passenger helicopter bus is a definite part of the future. The only thing holding it back is cost, especially fuel cost. Using gasoline will require too high a fare. But perfection of the turbine engine to get it to burn low cost fuel efficiently, as is coming close in auto experiments, may cure that.

As for the rubber-tired, crewless L train reaching far out into the suburbs on narrow structures above the sidewalks — that is being hastened by high labor costs. Such installations are being considered in several cities just embarking on rapid transit ventures. They would be on the drawing boards in Chicago if it were practical, which it is not, to junk present elevated and subway facilities.

Monorail is out of favor at the moment with forward-looking traffic engineers. No one has demonstrated that it will work anywhere except on a straight line over a short distance. Curves present stress problems which would require supporting structures much more massive than those the L now uses. Switching has not been figured out. Even crossings are baffling. A test section put up in Houston, Tex., was a flop. It has been carted off to an amusement park in Florida.

The air-conditioned bus, however, is out of the dream stage. It can be had now, but transit operators see no benefit in it for runs on which doors are opened frequently. Express routes will have air conditioning when the public is willing to pay a premium fare for a long, fast, cool ride. The newest L cars have ducts built in the ceiling in preparation for air conditioning when it becomes more practical.

A more immediate push is being



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GENERAL SYSTEM

made toward consolidating railroad commuter service. Prof. Stanley Berge of the Northwestern University transportation department developed a plan for doing this. He argued that money can be saved and the customers more efficiently handled if the stub-end stops at downtown railway stations are eliminated.

Under Prof. Berge's plan, trains coming in from the north and west would continue on south and, later, east into Indiana. He would hook up the Chicago and North Western Railway with lines coming into Union, Grand Central, LaSalle and Dearborn stations. He also would tunnel under the Chicago river to link the North Western with the Illinois Central. Downtown business groups, civic clubs, organized commuters and state legislators have shown interest in this plan. Cost is the greatest deterrent to it.

Moving Sidewalks

All the planners, Prof. Berge among them, include moving sidewalks in their thinking for Chicago's future. Belts to carry people are being built and promoted. A few are being installed, such as the ramps at Wrigley Field and the Englewood L station. Manufacturers show their latest models with seats and protective coverings from sun, rain, snow and wind. The sidewalks in the catalogs are pictured moving at the second floor level past show windows building arcades.

Tomorrow surely will be the in transportation. Even the pe trian will not have to walk. He w even have to stand up.

Libraries

(Continued from page 49)

training. He no longer has any hope of reading all of the information pertinent to his field. And when his work takes a new turn, he must pause to survey what others have done, lest he waste time and money in duplication.

The years ahead will see these problems compounded, not only by the avalanche of materials rolling off press and mimeograph machine, but by the speed and specialization of modern scientific research.

Herman H. Henkle, the John Crerar Library's director, cites the example of powder metallurgy. "Thirteen years ago," Henkle recalls, "there had never been a book on powder metallurgy, and a reference librarian brought the first articles to my attention. In a little over a decade, we have moved from books on the subject to a full-fled literature. The material on pow metallurgy in periodicals alone requires a journal of abstracts."

The same geometric growth pu relentlessly ahead in other sub areas, some of the better known ing nuclear science, radar and a mation. Materials on automa now require a 300-page bibliogra simply to list them. Concludes H kle, "The volume of scientific lit ture is dangerously near the poin suffocating scientific research development."

The younger but no less frui social sciences propagate parallel velopments in the literature of b ness and industrial managem Whole new subject areas have spr into being — personnel and in trial relations, psychological test motivational research, market search, public relations, etc. Bow to the heavy use of these collect by Chicago-area companies, the cago Public Library in 1956 elev its business and civics room t Social Sciences and Business Dep ment, adding 20,000 volumes to existing resources.

To control and make useful t tidal waves of information is self-appointed task of the pr sional librarian. In the process, h staking out for himself and his leagues a new career inside busi and industry. Membership rec of the Illinois Special Library A ciation, with which most comp libraries are affiliated, reveal formation of 107 new, staffed lib ies since 1941 in Chicago-area fi This trend, says the associatio accelerating.

Some firms, which have had t nical or scientific libraries ai research or development, now busily installing company-wide braries to assist production, mar ing, finance, sales, etc. Internati Minerals and Chemical Corpora in 1952 provided a library for its

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MARS COCOANUT BAR	SNICKERS
3 MUSKETEERS	MARS BAR

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eral Research Laboratory in ie. In 1956, a second, "corpora- library" was established in the ago general offices. The librar- reports directly to the adminis- ve vice president, and serves , marketing, advertising, public ions, industrial relations and the technical areas of mining and neering.

ther multi-library companies in- e American Can Company, our and Company, Bendix Avia- Corporation, Caterpillar Trac- ompany, Inland Steel Company, land Cement Association, Sears, buck and Company, Standard Company of Indiana and Swift Company.

Company Libraries

the close to 200 company li- ies in the Chicago area lies the to the changing concept of the rian's job. From a "custodian," as evolved into an administrator nformation and a detective of re trends, choosing and organiz- material on request or on his own ative.

ained to handle the complete ature aspects of a project, the rian alleviates the shortage of tists and engineers by freeing for their specialties. For the utive, the librarian lessens the inistrative load through assum- much of its information gather- spects.

he librarian's new role as an ve promoter of information" he theme of the recent Executive erence on Organizing and Man- Information, the first of its in the midwest and one of the in the nation for business and stry, sponsored by the University hicago.

he larger libraries, too, are gear- themselves for greater research ance to users. Crerar, the larg- cientific and technical library he world, is re-evaluating its tions. Ten years ago, use of ar collections by the library's staff, performing research or ref- e for others, represented less five per cent of total usage. y, Crerar's photo duplication ce and its world famous Re- h Information Service account lmost a third of total usage.

nployed intensively by Chicago- industry and business, the Research Information Service undertakes projects on a cost basis. Queries range from the heat generated by a pound of ripening tomatoes (for a Chicago advertising agency) to a lengthy report on metals used for type faces (for Turkey).

The City of Chicago, similarly, is shaping its Municipal Reference Library to better serve the widening activities of government. With its present budget almost double that of previous years, Municipal Reference is rapidly enlarging its role as a repository for city archives to extend active research and information service to city departments and agencies. Chicago's ambitious public improvement program makes this essential.

For example, the building department once was the sole agency concerned with construction, and then chiefly with code enforcement. Today a dozen agencies plan and construct the Chicago of tomorrow through slum clearance, community conservation, and metropolitan government cooperation. Municipal Reference increasingly is called upon for the vital task of organizing background information requisite to intelligent progress. The library's daily traffic has jumped almost 25 per cent and will increase further as more departments and agencies discover and take advantage of its expanding services.

Stepped Up Demands

Chicago's new Calumet Harbor is causing stepped up demands on another of the city's information sources, the Library of International Relations. Companies in the area, and particularly the financial community, are intensifying their study of the economies and governments of the countries with which they expect to do business. L.I.R. predicts spiraling use of its foreign fact sources, such as bank reports, chamber of commerce bulletins, government commerce reports, current population data, etc., as well as its collections on the geography, history and culture of other nations.

Like Crerar, L.I.R. offers both business memberships and cost-fee research. But Director Eloise ReQua notes that local companies today more frequently send their own staff members to use L.I.R. facilities, perhaps in preparation for future ca-

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W. W. Huggett, Pres.

reers in Chicago's destined prominence as a world port. Published materials on all areas, and especially on Asia and Africa, will multiply, predicts the L.I.R. staff. Microfilming is planned to help solve the inevitable storage problem.

Automation holds the librarian's hope of meeting the new information "management" demands of him. For to provide maximum assistance to researcher and executive, the librarian must be freed of the mounting mechanics of his job.

Photo-chargers are in Chicago libraries now. The card catalog and the index likewise can be committed to machine. Facsimile reproduction by wire already connects government research projects. And Chicago's Midwest Inter-Library Center serves as both storehouse and nerve center for Crerar and the 18 universities now linked to it by teletype.

Newberry Library's Dr. Stanley Pargellis points out that even an essentially scholarly institution must look to automation for help. "We face the problem of the swollen card catalog," Dr. Pargellis explains. "We add nearly a hundred thousand cards a year — in 10 to 15 years we'll have added another million. Our users, too, increase at a steady pace — we have scholars from throughout the country and the world. We share with all libraries the need for a fast and easy guide to the growing number of volumes, so that we can make them available to a growing number of users."

Engineers are coming to the rescue with devices that wait only upon library budgets to mechanize the search for materials. The Rapid Selector, an adaptation of microfilm, runs coded abstract material through a machine in which the librarian has placed his query, or key, also in code. The machine automatically produces pictures of the relevant material, or "answers," permitting high-speed scanning of large quantities of data. Or, Eastman Kodak's Minicard, which can record up to 12 letter-size sheets on a single card, permits material to be searched by an IBM electronic sorter.

It may not be too long, say the librarians, before even the substantive content of publications can be turned over to a Univac or the IBM
700 series of electronic data pro
ing machines. While engineer
tempt to enlarge the mach
"memories," librarians work
translating informational mat
into "machine language." A
year project, sponsored by the A
ican Society for Metals, is under
to explore such electronic sto
and retrieval of information. A
machine has been built at C
land's Western Reserve Univer
and Crerar is assisting in the se
of metallurgical literature for
project, termed by Director He
"the great promise for the future

More Leisure

Automation outside the librar
factory and office, is raising both
number and reading levels of
library audience, reports Gert
E. Gscheidle, head librarian of
cago Public Library. More lei
plus the need to be better tra
and informed on the job, has sw
Chicago Public's circulation b
most a million within the past
years, with a total of 9,328,265
drawals in 1956. Card-holders
to almost three-quarters of a
lion, and the collections approa
2.5 million items.

Chicago Public's own 20-year
with a target date of 1971, call
a total of 68 extension units,
pared to the present 59. The
tional units will bring library se
within approximately a mile of
Chicago homes, with more spa
settled areas served by trave
branches.

The plan actually will bring
greater expansion of facilities
is reflected in branch totals, fo
important aspect of it is the m
ment of branches from stores
field houses into buildings of
own. Chicago Public also antici
continued growth of its book s
service to hundreds of school,
tutional and business and indu
libraries.

Potent leadership in libr
ship's growing complexities
from the American Library As
tion, headquartered in Chicago
David H. Clift, executive dir
"The Association looks to the
decade to bring a large expansi
library facilities throughout
country. The Chicago area has
a considerable growth in librar
recent years. . . . Chicago area li

are among those who have eered in extending library serv- so that music recordings, films, art objects are familiar and used library materials. Addi- lly, they have stimulated use of ibrary for discussion groups and 'adult education' activities. libraries of the Chicago area become lively centers of activity he communities they serve."

he association points out that in face of the challenge for more nsive service on an ever-growing of material, the library field, mmon with other professions, rs a shortage of trained per- el. An estimated 10,000 jobs waiting to be filled, and today's uate of an accredited school, as the Library School of the ersity of Chicago, may be of- a dozen posts. High in impor- among its myriad activities are association's efforts to raise lards of both performance and rd.

icago's enthusiastic recognition ooks as tools, and its willingness ing librarianship into the circle angement skills, may well prove ey to wresting maximum useful- from our mounting stores of ledge.

Candy

(Continued from page 94)

ring already measures both dry liquid ingredients, previously ned by scale. There is also a l away from batch-type opera- and the substitution of contin- operations using automatic cut- weighing and measuring equip- . Packaging, too, is increasingly led by automatic machines.

he growth of automation in pro- on is bringing changes in pur- ng in its wake. The decline in a production obviates the for- advantages of packaged ingredi- and the candy makers are mov- ncreasingly toward bulk buying. r, for example, now is pur- d by many companies in bulk r than in sacks. More and more ctioners are buying liquid choc- directly from the chocolate ucers, eliminating the processed cake.

ny new candies will be on store ers and in vending machines in the next several years. Now being tested, for example, is the use of cranberries in candies which have traditionally contained cherries.

Research is continuously under way, not only in consumer tastes, but also in the development of new ingredients and improvements in textures and quality. A joint research project, for example, currently is searching for a fat equal to or better than imported cocoa butter, which is subject to erratic price movements. Cooperating in the project are the National Confectioners Association, the United States Department of Agriculture, and the Southern Utilization Research and Development Laboratory, at New Orleans.

Another subject of industry-wide research is the use of anti-oxidants, or substances which prevent chemical rancidity from appearing in fats. A successful solution would greatly extend the shelf-life of the several kinds of candies containing fats, an important consideration for an industry whose distribution now circles the globe.

to a young man in search of his future

If you are a young man whose heritage is the Midwest, your future can be here in the land where you were born — here waiting for you to create it with American initiative and enterprise. There is no end to the opportunities that await you.

If you are a young man whose heritage is elsewhere, the Midwest challenges your hopes and ambition, your desire to make something of yourself. The Midwest can be your land of opportunity.

So, if you are young, the busy, progressive, pulsating Midwest is a challenge. It is the heart of America, the most typical and representative part of this nation. Within 500 miles of the Midwest's capital, Chicago, is concentrated 37 per cent of the nation's population, 38 per cent of its retail trade, 46 per cent of its manufacturing plants, more than 41 per cent of its farm wealth. The Great Lakes Basin is the world's greatest concentration of industry. From Chicago extend world transportation networks. The Midwest grows, makes, sells and buys more things than any area. As a workshop and consumer, it is one of the busiest places on earth.

This is what is waiting for you in the Midwest, young man. The tools to build your own bright future are here. It is the land of the bright future, and you can get your share of it.

UTLX

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Largest railway tank car company in the world and builders of the strongest, most durable cars for the rugged use of industry . . . Operators of more than 50,000 cars transporting petroleum and its products, chemicals, vegetable oils, coal tar products and other liquids for industry and the home.

228 NORTH LA SALLE STREET, CHICAGO

Office of the Future

(Continued from page 76)

firms which are utilizing the principles of automation to improve the efficiency of such products as dictating, duplicating, and adding machines.

Greater Chicago possesses a special relationship to the office of tomorrow which many office planners have already begun to appreciate. The city and its environs are not only the center of a huge market and a gigantic factory complex, but are also the economic center of the country, close to a number of other highly industrialized population centers. Says one systems expert:

"The typical businessman, when he buys a computer, can justify its cost only in one way — by making it work for the whole company. Where the company is composed of widely scattered plants, a central location is mandatory. Many companies faced with this problem have gravitated to the Chicago area; more will do so in the future."

Higher Costs

The automated office won't be cheaper to run than the present-day model, despite surface evidence to the contrary. If anything, costs may be higher, say the experts. Despite this fact, a rapid increase in use of computers and related equipment by firms large and small is inevitable, they add.

The basic problem is that business is slowly drowning in a sea of paperwork. In 1940, 11 employes in every 100 were clerical workers; today, despite tremendous increases in office output per man hour, 16 per cent of the entire U. S. labor force works in the office. The workload is increasing faster than the clerks can handle it. The only way to win this race is to: (a) develop more highly automated data processing systems; (b) make the equipment feasible for more companies and more applications.

Today, computers are able to swallow vast gobs of data and cough up results at lightning speed, but much of the speed and efficiency is lost because of the time required to process the data before and afterward. One large company, for example, electronically computes checks for 15,000 employes in two hours. But it takes almost a day to prepare the punched cards that comprise the computer input, and several hours to print the computer output on check forms.

These delays, particularly the one on the input side, cost a lot of money. Input preparation is still largely a manual operation — in most cases involving a keypunch operator who converts original data into a form that can be digested by the computer (punched cards, paper or magnetic tape).

One way to reduce this problem is to eliminate the keypunch operator and replace her with some sort of device that would convert original copy into holes in a punched card or paper tape, or traces on a strip of magnetic tape. To date, methods have been developed — pre-punching and mark-sensing, for example — which reduce the keypunch operator's workload. But they all have limitations. A few years from now, the story may be different.

The National Bureau of Standards has developed a device known as "FOSDIC" (Film-Optical Sensing Device for Input to Computers) which, briefly, microfilms information, then converts it into electronic pulses that can be recorded on punched cards or magnetic tape and fed into a computer. FOSDIC will be used to compile the 1960 census. When the last major head count was taken in 1950, 2,000 keypunch operators were required to convert the data obtained by the poll takers into computer input. Reportedly eight FOSDIC machines, manned by a staff of 100, will handle the whole job next time.

A few banks are now putting magnetic dots on their checks which permit automatic transfer of some data from the check to a ledger "card" stored in a computer's magnetic memory unit (see banking story for further details). GE's ERMA (Electronic Recording Machine — Accounting) was the first computer developed to read and process these dots automatically. The Burroughs Corporation has a somewhat similar system known as "Bankomatic," which employs fluorescent ink dots.

A. B. Dick's new photocopy machine
produce an unlimited number of repro
tions when used with an offset dupli

In both cases, the dots permit el
nation of much of the manual
connected with posting and/or
ing of checks.

Systems engineers feel that
netic or fluorescent ink could
inate the keypunching opera
now required for such general
ness accounting jobs as payroll
aration and inventory reports.
stead of printing each empl
arrival and departure time, for
ample, a time clock could im
magnetic (or fluorescent) dots o
time card. This card could the
fed directly into the computer, w
would be able to read the data i
same way it now reads holes
punched card. Similarly, dots m
be used on stock tickets, instea
letters or numbers, to record
item, price, and other data.

Before keypunching can be
inated for most accounting
though, a device that can read
bers and letters will have to b
veloped, say the experts. The
netic and fluorescent dots menti
above record information in
(binary numbers). This code
be translated before most peopl
read it.

Intelligent Machines Res
Company, Arlington, Va., has
oped a device which reportedl
read letters and numerals, and
vert them into computer in
punched cards or magnetic tape.
Laboratory for Electronics, B
has a machine that is said to
numbers. Both employ a phot
tric scanning principle. The f
device is now being used by tw

There's opportunity in packaging ...and CANCO leads the way!

Canco's long record of "firsts" in packaging has not come about by chance. Containers now in common use were once only inspired ideas in the minds of Canco scientists and engineers. Bringing such ideas to reality requires months, often years, of work.

As a result of continuing progress in container development, American Can Company has long been the world's leading manufacturer of metal cans and is now a major producer of paper and plastic containers as well as collapsible metal tubes.

The company maintains 138 plants, research laboratories, machine shops, sales offices in the U. S., Canada, Hawaii and in other overseas locations.

Here in the Chicago area, Canco operates the world's largest container-research center, and there are 14 other Canco units in greater Chicago.

As you would expect, this dynamic organization offers outstanding career opportunities to college graduates—in sales, research, manufacturing, purchasing and other fields. For, like Chicago itself, Canco looks forward to "new horizons," confident of future growth and achievement.

American Can Company *New York • Chicago • San Francisco*

companies for processing invoices; it reads at speeds of 150 to 300 characters per second. The latter machine has been used experimentally at Chase National Bank in New York City to handle checks. The checks have been processed at a speed of 16 per second.

Burroughs has a similar "character recognition" machine under development which, in a test at the First National City Bank of New York, was able to process 7,200 checks per hour. Both Sperry-Rand and IBM are known to be working on this problem also.

Ten to 20 years from now, these machines or devices like them should be installed in many offices, say systems engineers. When that day arrives, it is generally believed, the need for manual keypunching will be sharply reduced, and perhaps eliminated. Sales orders, invoices, and business forms of all types that contain the data needed for accounting reports, will be translated automatically into computer input. Besides reducing labor costs drastically, character recognition machines will be able to prepare computer input many times faster than is now possible. Executives will be able to obtain reports much sooner than they can now.

Memory Units

Data processing equipment manufacturers already have speeded up input preparation and output processing markedly. During the past year or two, the "big three" computer makers — Sperry-Rand, IBM, and Burroughs — all have developed random-access memory units, for example. Also, magnetic tape inputs are now available for some of the smaller computers, programming has been simplified, and the speed of the printer that converts computer output into intelligible letters and numbers has been sharply increased, to mention a few of the other advances.

A random access memory unit eliminates the need of sorting input data before it is fed to the computer. This sorting operation often accounts for a sizable percentage of the preparation time, especially when the equipment produces a number of different reports from the same source of information. Also, raw data can be fed in as soon as it arrives, without waiting for a batch of accounting information to accumulate. A company that now prepares weekly or monthly sales reports, for example, could conceivably have them on a daily basis just as easily by using a computer with random access memory.

This desk-size Victor calculator is performing a variety of jobs as a component of data-processing systems. Above adding machine automatically prints scientific data obtained by equipment in background

The typical computer will read punched cards at around 15,000 characters per minute. If the information is on magnetic tape, however, reading speed jumps to about 1.5 million characters a minute.

Mechanically operated printers process computer output at a speed of around 150 lines of type a minute. The newest high-speed units, by comparison, turn out as many as a thousand lines a minute. During the next few years, new processes such as xerography, ferromagnetography, and "smoke printing" should push speeds considerably higher.

A thick bankroll is required to buy most of this new equipment. Theoretically, its benefits are limited to the larger companies. Actually, the small businessman profits too.

More and more small and medium-sized firms are sending their accounting chores to "service centers" which own electronic data processing equipment and spread the cost burden by handling the work of several companies. Since the service center's charge is based primarily on the time required to program and process each customer's job, anything that reduces this time produces a direct benefit to the user. Most centers keep up with the latest equipment and pass the
savings along, to fend off ste
growing competition if for no
reason. Thus, even though a
or medium sized firm is unab
afford the latest wrinkles in
processing systems, it will still
fit by utilizing a service center.

To date, electronic data proce
equipment has been used prim
for compiling business history
summaries of sales, productio
ventory, and other dynamic fa
after the changes have occu
Many experts feel that the nex
breakthrough will involve use o
computer as a forecaster.

Middle and top managemen
ecutives are burdened with all
of routine problems that could
be resolved by computers, thes
perts explain. Purchasing ag
for example, must spend days
lating their buying operations
future production schedules so
sufficient inventory will be on
several months ahead. Produ
managers must schedule work i
shop so that all machines are
busy without becoming overlo
Marketing experts must relat
size, amount, and type of pr
manufactured to customer der
Much of the work involved in
problems can be reduced to m
matical formulas which, after
processed in a few minutes
computer, would give manage
the answers to problems that n
quire days or weeks to solve.

Buying Operation

Take the buying operation;
tially it's a matter of adding q
ties on hand to quantities rec
and subtracting quantities used
computation must be made at
weekly, or monthly intervals
periods extending varying am
of time into the future. A
computer, if told what the p
tion rate is going to be, how
units of each raw material are
to be delivered and when, can
determine whether there is go
be enough material on hand.
fied of a change in one of the
ables — increased production
example, or failure of a suppl
deliver on time — it can quick
ure out the effects.

Says one systems expert:
puters will never be able to
company in the same way tha

iow able to control some produc- lines. There will always be a area of decision making that can andled only by executive brain- er. But on the other hand, there o reason why computers can't over the routine, time-consum- letail, and provide the executive io is chronically pressed for time vay—with extra hours to con- rate on the tasks that require his al talents."

ne of the largely overlooked arti- of the electronic revolution in office is what some experts call "poor man's computer"—the desk adding machine. Complete data essing systems are available, around a small electric calcula- which will perform all the basic tions of a room size electronic n. The calculator system won't lle as much data, won't manipu- it as much or as fast as, say, a 'ac 120 or IBM 607 (small com- rs), but the cost will be com- tively minute.

Ditto's model D-45 direct (liquid) process duplicator can reproduce original copy at speeds of up to 100 copies a minute

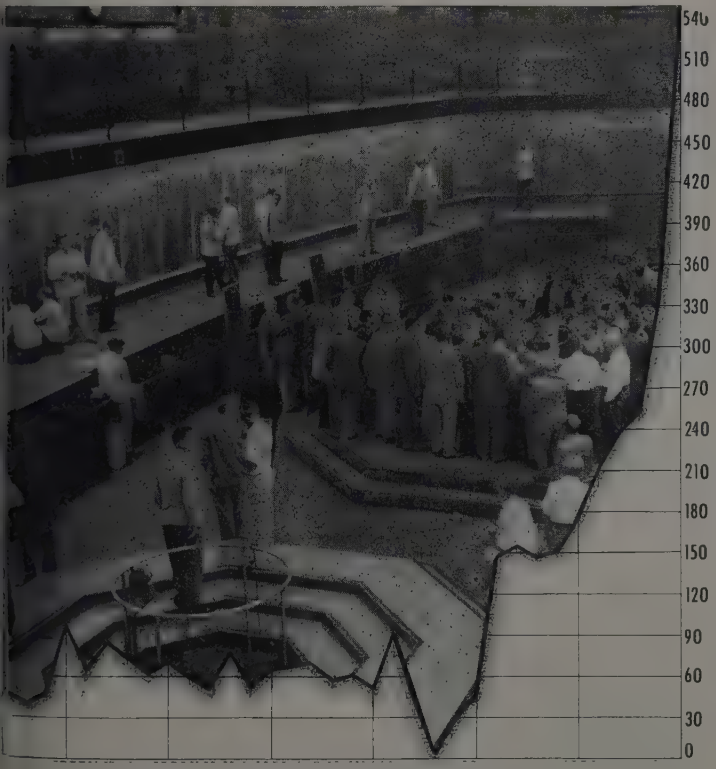
icago's Victor Adding Machine pany has been a pioneer in the tation of the calculator to the integrated data processing concept. A typical application of its equipment is in a billing operation where the quantity ordered, quantity shipped, the unit price and the discount are fed to the calculator from punched cards (paper or magnetic tape might also be used). Automatically, the calculator figures the balance on order, the gross amount of the order, the discount amount, and the net amount.

Desk calculators can also be hooked up to large computers as a replacement for, or auxiliary to, an output printer. Or, the keyboard can in effect be separated from the adding machine, permitting data to be fed in from one or a number of remote locations. This particular setup is already being used by some companies to cut the labor required for taking inventory.

Desk calculators also can be hooked up to measuring instruments such as freight dock scales, electronic counters that keep track of cans or boxes traveling along a conveyor, and devices that measure heat, pressure, and humidity. The adding machine automatically supplies a permanent record of each reading.

Systems engineers believe that in future years the use of the lowly adding machine for these and similar tasks will increase drastically as the nation's expanding economy, rising labor costs, and the pressure of competition increase the small businessman's need for automation.

Equally wondrous developments are coming in duplicating and dic-



ume of futures trading in thousands of cars. 36 years of trading on the Chicago Mercantile Exchange.

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tating machines. One portent is an automatic control board for offset duplicators recently unveiled by Ditto, Incorporated, one of the big three (A. B. Dick and Addressograph-Multigraph are the others) in the duplicating machine field.

Offset duplicating is rather tricky. You have to have just the right balance of ink and water on the printing plate, just the right pressure between the plate and the blanket roller that transfers the image to paper. Ditto's new control board, once the dials have been set at the beginning of a duplicating run, automatically regulates these factors, besides stopping the machine after a pre-determined number of copies have been run off. Company officials feel that further automation will be a major trend of duplicating machine development during the next several years.

Conventional duplicating techniques, although they have reached a high level of refinement, still pose problems for the user with widely scattered plants which must reproduce a given document a few or several hundred times. The copies can be obtained easily enough, but shipping them can be expensive; also, a certain amount of time is required in most cases to prepare the master. Photocopying eliminates the latter job, but it is capable of economically producing at most only a few duplicates from each original. A few months ago, A. B. Dick Company brought out a photocopy device that produces offset plates as well as copies. Thus, any number of duplicates can be prepared from the original. Instead of shipping a batch of reproductions, the company with widely scattered plants is now able to mail just one offset plate to each plant.

Copy By Electronics

A. B. Dick has also unveiled an experimental duplicating system, developed jointly with Stanford Research Institute, that relies on electronics to copy the message. Briefly, a continuous sheet containing original data is scanned by a tiny photoelectric beam. The beam transmits impulses through a coaxial cable. Then, these impulses form an electrostatic field on copy paper at the other end of the cable. Finally, pigmented material which orients itself on the surface according to the electronic charge is applied to the paper, forming an image in the shape of the letters and words on the original document.

This machine won't be on the market for a long time. However, A. B. Dick officials believe it is worth waiting for because of the many potential benefits. Among the most important ones are: high speed (three 8½ x 11 in. sheets can be duplicated per second); elimination of the stencils, masters, or plates required by most conventional processes; immediate availability of duplicates even when they are to be used miles from the location of the original document. The potential ability to read the output of high speed electronic computers is another important feature of the device.

Electronics has altered the dictating machine pretty drastically; even more dramatic changes are on the way, believe officials of Chicago's Comptometer Corporation, a le
manufacturer of calculators and
netic dictating machines. Comp
eter officials see the possibility
miniature dictating machine fo
fice use, small enough for the
nessman to stow in his coat po
Such a machine is several years
but the company's research engi
believe the idea is definitely fea
Battery operated, the machine
be carried virtually anywhere.
ters, memos, and reports coul
recorded immediately after th
formation was obtained.

Miniature dictating machines,
tronic duplicating systems, and
acter recognition machines
sound far-fetched, but when you
sider that as little as 10 years
about the only electronic devi
the office was a public address sy
and automation was just begi
to be discussed in the factory
chances of these additional wo
materializing seem good, indeed

Board of Trade

(Continued from page 66)

midst of what sociologists call a "population explosion." Population in the United States has climbed above 170 million. In 1940, before World War II and the Korean War, it was 132 million. The Census Bureau projects that by 1970 the population in this country will be between 189 and 205 million.

Obviously, all these people are going to have to eat. They may be able to do without color television sets, space suits and private jet airplanes — but they won't be able to do without food. Agriculture Secretary Benson has said the long term outlook for agriculture is rosy, as indeed it is. Annual consumption in America alone of grains, soybeans and other food products in the 1970s should be much greater than it is today. An expanded movement of grains off farms and into consumer channels should increase the importance of the Board of Trade's unique position in the marketing system, and along with it the activity in both the cash and futures markets.

A more immediate development — one, in fact, which is now going on — is the shift in the mode of hauling grain. Arrivals by barge and truck are becoming a larger proportion of total receipts. With the vast fe
road building program only g
out of the blueprint stage, the
to trucks seems likely to con
Congress has authorized the e
diture of 25 billion dollars on
way construction from 1957 to
More federal highway funds w
available to states in the next
years than in the 40 years sin
first Federal Aid Road Act, ad
by Congress in 1916. In the
west, Chicago should mainta
position as the hub of these
ways. The Illinois Waterway
grain from the rich Illinois ter
to Chicago.

Yet it is the St. Lawrence S
which really fires the imaginat
the Chicago grain trade. Th
way will bring the Atlantic
inland and its waves will lap I
corn fields. An exhaustive stu
comparative ocean and rail
for export grain, undertaken
Midwest university, has conclu
will be much cheaper to ship
out of Chicago directly on
going vessels than to send it b
to Atlantic Coast ports for lo
there onto vessels.

Baltimore is the major At
Coast export city for grain, p

use the 804 miles on the Balti- and Ohio railroad to Balti- is the shortest route between ago and the Atlantic. In the from 1952 through 1955 Balti- exported an average of 74 mil- bushels of grain each year. Orleans exported an average of illion bushels. It is estimated by the mid-1960s Chicago's ex- will run between 80 and 110 on bushels.

icago will become the export for the major wheat producing Kansas. The Chicago terri- will include such fertile pro- ng states as Nebraska, Missouri, and, of course, Illinois. Grain tors at Lake Calumet will be lly located for all types of trans- ition. Grain will come up the ois Waterway on barges for un- ng into elevators and later fer into ships. The Calumet essway passes near by and a interchange will be provided. his is the economic reason be- the two elevators on Lake Cal- . The Chicago Regional Port ict, a municipal authority, built . One has been leased to the ois Grain Corp. and the other to the Rice Grain Corp. Each elevator will store 6½ million bushels of grain. Last year the Glidden Co. opened a new elevator. Ben Raskin, vice president of Rice Grain Corp., says, "The Seaway will make owning elevators in Chicago a darned good business. That's why we're going into it."

J. O. McClintock, vice president in charge of grain merchandising for Illinois Grain, shares Mr. Raskin's confidence about the future. Mr. McClintock notes that, in the past, Chicago's elevator growth has not kept pace with other major grain terminals. He says, "The Seaway will add very materially to Chicago's importance as a grain terminal."

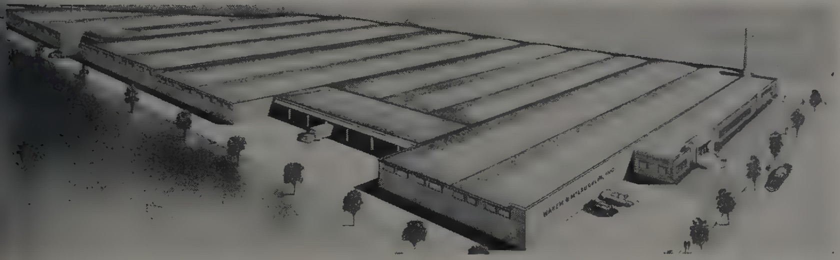
The cold hand of government still grips the grain trade, but not quite as tightly as in the past. In 1956 much of the wheat export business was handed back to the private trade — with spectacular results. Exports in the crop year ended June 30, 1957, will total about 450 million bushels compared with 341 million in the last crop year. Part of this spurt can be attributed to poor European crops caused by the severe 1955-56 winter, but the trade vigorously believes it can merchandise grain abroad much more effectively than the government and is urging a comparable relaxing of the government's grip on feed grain exports.

The Board now has a paid president for the first time in its history. This is Robert C. Liebenow, who, at 34, is the youngest president of any commodity market in the country. "The outlook for the Chicago Board of Trade and the Midwest grain industry," Mr. Liebenow says, "is most promising. Within a few years, we expect to begin moving relatively large amounts of grain directly into export channels.

"This increased volume in the cash grain market should also have a positive effect on futures trading. Assuming that we eventually will be successful in persuading government agencies to return grain marketing functions to the private trade, there is every reason to believe that Chicago will greatly improve its position among world grain trading centers."

Evidently quite a few people agree with Liebenow. Memberships on the Board of Trade this year sold at the highest prices since 1934.

IDWEST'S MOST MODERN WAREHOUSING



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Busiest corner of the world
ST. PETERSBURG, FLORIDA
New Hotel and Restaurant

Bus Transportation

(Continued from page 72)

Continental Trailways Bus System, Dallas, Tex.

Howard Willett Jr., president, The Willett Co., Chicago says: "The advantage of motor bus transportation is its economy. The impact of the new federal highway system will be greatly felt in motor coach operation. For one thing, higher road speeds on superhighways will give economy through more turn-arounds. Secondly, higher speed will make bus speeds more competitive with rail."

High Speed Buses

On short hauls, high speed buses may even have schedules comparable to those of airlines when the time to and from airports is considered.

That new highway network is designed for 70 mile an hour speeds in flat country, 60 miles an hour in rolling country, and 50 miles an hour in mountains. Of course, state speed laws will determine actual bus speeds, but there is no doubt that stoplight-free highways will mean faster schedules.

"An expressway can carry twice as much traffic as a conventional highway and carry it twice as fast," says one U. S. Bureau of Public Roads official in Washington. Bus officials predict that many of their time schedules will be halved.

Currently more than 2,600 intercity bus companies are operating more than 30,000 buses, with of them of the two level or deck a half type. Buses are rolling u estimated 18 billion passenger annually.

Major bus companies are lo ahead to new super vehicles w will fit the new superhighways. Moore of Continental Trailway phasizes that his line's new lu bus service is a sample of what come. "For a minimum servic the passenger not only gets res seating but hostess service with beverages, magazines, rest rooms sic and other attentions that been established by the airlin normal service," says he.

Mr. Genet of Greyhound pro a clue to some of the things in for future bus riders of that Sy

Says he: "Unquestionably equipment will be improved. buses will be powered by ex new engines that are already u going secret work tests here abroad. Buses will be more col with new type dyes, paints and als, adding brilliance to our ways. More glass than ever w used in their construction. The will be virtually picture windo wheels. They will ride more sm ly and quietly. They will be l in weight due to the use o plastics and still-to-be-disc new metals. They will be fast will make more trips."

Savings and Loan

(Continued from page 68)

said Alan Anderson, vice president of the Federal Home Loan Bank of Chicago, "but it doesn't seem unreasonable to believe that they will grow as much per year in the next 20 years as they did in 1956, when total assets increased 400 million dollars."

First Federal Savings and Loan association of Chicago, the largest association in Illinois and the fifth largest in the country, anticipates a growth of around 10 per cent a year for the next 20 years, said Morton Bodfish, chairman and president. He estimates that in 20 years, First Federal should have approximately one billion dollars in assets against 210 millions at present.

If associations do reach the 12 billion asset mark as foreca number of persons employed business should range from 10 12,000 against from 2,500 to now since employment is figu about one person for every on lion dollars in assets.

Bodfish and other industry l predict many innovations in l practices. Associations also a pected to take full advanta automation and to place a deal of emphasis on research increases are expected in auto for computing dividends and i on loans and in speeding rec of savings and investments.

Mercantile Exchange

(Continued from page 80)

’ but he adds the qualification, the trend to socialism can be ped.”

itures are contracts that call for delivery of a certain quantity of mmodity at a certain date. These racts offer price protection for ers in the cash commodity and he producer, by a mechanism wn as hedging. For example, if aler in eggs owns 100,000 cases, an protect himself against price by selling futures contracts for 000 cases. Cash and futures es tend to move together. Thus, e price of eggs declines the deal- vill lose money on his egg in- ory but compensate for it by ing money on his “short” posi- in the futures market.

government activity stabilizes price, there is less need for the dealer to seek protection against changes in the futures market. ulative trading also is dulled. ies do not respond to basic eco- ic factors, which a speculator understand and interpret, but to whims of a government bureau.

Name Changed

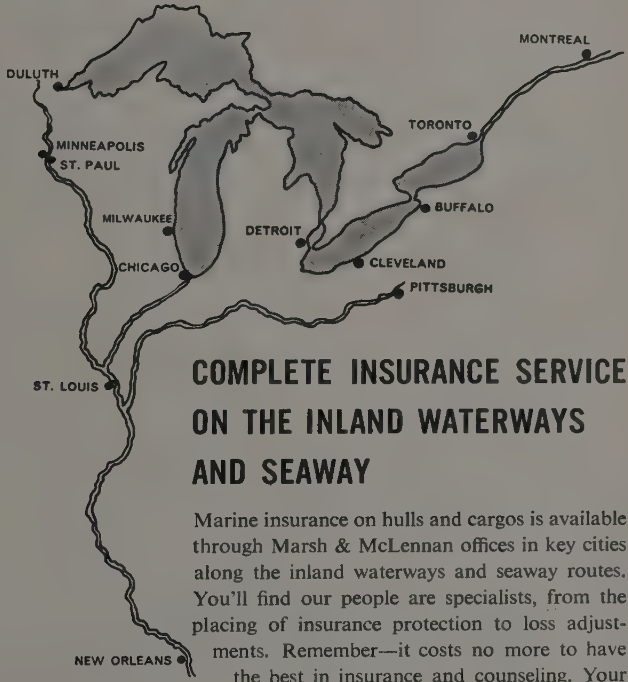
he Mercantile exchange has e a long way since it was founded e Chicago Butter and Egg Board 898. Until World War I the d functioned strictly as a cash ket. During the war prices fluc- ed wildly and many private es were made for future delivery. y were not governed by any reg- ions. With the war over, the e of the organization was ged to Chicago Mercantile Ex- ge and rules for futures trading adopted.

n outstanding characteristic of Mercantile exchange has been eadiness to experiment. Some- s this experimentation resulted ustration. A few years back trad- n steel scrap futures was started. iled to catch on because scrap ers felt there was no economic for it. Prior to that, experi- ets in apples and cheese futures similar fates.

addition to storage eggs, frozen and onions, the exchange pro- s facilities for trading in butter, turkeys and potatoes. Michael Weinberg, the exchange’s chairman, says, “In my opinion, we are not at the top of our business volume. In fact, we are nowhere near the top.”

It is conceivable that opening of the St. Lawrence Seaway, making Chicago a world port, will bring to the city more perishable commodities destined for export, causing a consequent expansion in futures trading. Eggs are exported to Latin America and Europe. Last year West Germany was a buyer of onions.

Meanwhile, the Mercantile exchange is easily the dominant market in the world for storage eggs and onions. Prices posted on its blackboard are flashed around the country. The exchange’s own ticker service reports every transaction almost instantaneously to hundreds of cities. Radio stations broadcast quotations, newspapers publish them. All the well-known corporations in the food



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Chicago New York San Francisco Minneapolis Detroit Los Angeles Boston Pittsburgh Seattle St. Louis Indianapolis St. Paul Portland Buffalo Duluth Atlanta New Orleans Tulsa Milwaukee Phoenix Cleveland Washington Montreal Toronto Vancouver Calgary Havana Caracas London

field — Armour, Swift, Beatrice, Borden, to name a few — have representation on the exchange. Country shippers, and receivers at terminal markets, hold memberships or operate through commission houses. Onion producers in Texas and egg dealers in Minnesota gear their operations — production, buying, selling — to the all-important prices ticking out of Chicago.

Steel

(Continued from page 79)

tions to existing mill facilities. This is already happening, and at least $300 million is already committed for such expansion in the immediate Chicago area. (2) Technological gains will boost production from existing furnaces and rolling mills. (3) The decade will see the advent of complete new integrated mills. Bethlehem, like Acme, is expected to build hot metal furnaces in connection with rolling mills here. Off-the-record estimates put the total gain from these new mills as high as 2.5 million tons by the mid 1960's.

Nonintegrated Mills

Nonintegrated mills will continue to grow as well. Jones and Laughlin recently acquired Monarch Steel as a Division, making J&L a Midwestern producer of cold finished bar. The same firm already markets steel through its warehousing subsidiary in the Chicago area. Bliss & Laughlin, one of the major producers of cold finished bar, was rated at 325,000 annual tons in 1948; hit 462,000 tons in 1954; and this year has a capacity of 490,000 tons annually. LaSalle Steel, another local cold finished bar producer, increased its capacity by 45 per cent between 1948 and 1954. It announced a new processing method for its product early this year, and it seems that further expansion will follow.

Chicago is still a deficit steel district. It can consume more steel in its trade area than local mills produce. Metropolitan Chicago's industrial growth rate is the nation's highest in annual dollar volume and in value of new industrial construction contracts let. More than half of these new industrial plants fabricate steel, whether it be tin cans or trucks. Coupled with this already high growth rate, is the strong outlook for future growth. Advent of Chicago as a major seaport is expected to produce a population increase of at least 1 million persons. It will also give a boost to heavy industries here which are already in the export market but have had to do their export banking and shipping through U. S. coastal ports. To these can be added a fourth factor for growth. Enlargement of the Cal-Sag channel will make Chicago, already the hub of the nation's air, rail, and truck traffic, the point of contact between the St. Lawrence Seaway and Great Lakes and the far-flung inland waterway system. Since 1950, it's been acknowledged that access to low cost water transport is a growth factor for any steel mill, as tonnages of finished steel moved by water have grown each year.

There is already a demand for export steel from Chicago. Tinplate produced in local mills has long been a demand item in South America, Europe, and Scandinavia. With water shipment at a steel mill's front door, a boost in export business can be expected — if Chicago mills ha
surplus over demand from the
cal, established, customers.

Hot metal output from a steel
can go up only as long as rolling
space is available to roll the i
into usable finished steel. U. S.
is planning renovation of at
three rolling mills and constru
of two new rolling mills. Youngs
Sheet and Tube has a new tube
nearing completion as well as a
electrolytic tinning line. Inland
mediate expansion program inc
a giant slabbing mill and a com
new cold rolled sheet depart
that will almost double its cap
to roll slabs and blooms and
rolled products. Republic Steel
creasing the capacity of three
ing mills to handle 55,000 more
of semifinished steel per m
Wisconsin Steel increased its cap
from 1 million tons annually
million tons last year as part
$10 million program now well u
way. Part of this money is being
to renovate ingot handling faci
Sometimes this alone allows a

True cuts for stainless steel plate are provided by this new abrasive-disc-cut mo
at Joseph T. Ryerson and Son, Inc.

Chicago District Steel, Production, Capacity, Operating Rates**

	Capacity	Production	Operating Chicago	N
1957	29,270,700			
1956	27,884,000	25,000,000*	90.3	
1955	27,852,700	27,852,700	94.1	
1954	27,371,700	20,745,815	75.8	
1953	24,960,600	24,378,122	97.7	
1952	22,258,500	19,496,331	87.6	
1951	21,522,750	22,369,763	103.9	1
1950	21,012,810	20,862,357	99.3	

*Approximate.

**Figures based on American Iron & Steel Institute steel making districts.

The Eckhart Milling Company

keeps pace with Chicago's New Horizons.

Chicago has traditionally been the heart of wheat trading in America. Bernard A. Eckhart was the pioneer of commercial flour milling here, adding stature to a city which has played a vital role in providing the world with the "staff of life."

Flour milling throughout the past five decades has kept the dynamic pace of American enterprise, and flour itself today emerges as a better, more nutritious product than our forefathers ever conceived.

More apparent, however, is the change in packaging and distribution. Once flour left the mill in cumbersome 196 pound barrels, hauled cross-town in wagons. Then came the cotton bag, followed by multi-wall paper bags. Latest of all are the intricate bulk trucks and airflow railroad cars which are the ultimate in speed, economy, and cleanliness. Each typifies our march of progress, and serves as a reminder of new horizons toward which we will always strive.

ECKHART MILLING CO.
1300 Carroll Ave.
Chicago, Ill.

Five-stand cold mill at Acme Steel Co. provides thinner gauge, greater hardness or high finish to hot rolled strip steel

partments of a mill to operate with greater efficiency, raising ingot output without the addition of more furnaces.

The eye opener in Chicago steelmaking is the fact that, with at least three of the world's five largest steel plants already operating in the Chicago metropolitan area, the outlook for continued expansion remains so strong. Gary Works is the biggest steel plant in the nation or in the world, Inland's Indiana Harbor Works is fourth largest, and the South Works of U. S. Steel is in fifth place.

Appetite for Steel

Between 1950 and 1955 national steel capacity rose by 33 per cent, while Chicago's soared by 40 per cent. Even that spectacular gain hasn't dulled Chicago's appetite for steel. Average annual production of steel rose nationally by 3.5 million tons per year. Chicago averaged a 1 million ton increase per year. Nearly one-quarter of the nation's steel output comes from the Chicago District, though it has but 19.74 per cent of national capacity.

Finally, increasing availability of raw materials will be an aid to continued expansion of Chicago steel. Illinois coals have not been regarded as prime for coke production. Recent experiments have produced a coke from these "high sulphur" coals that is actually superior to material that had to be shipped from more distant points. This is a very recent factor, but its impact is expected to be felt in the Chicago District in the next two years.

Another contributing factor is the development of beneficiated ores containing more than 60 per cent i after treatment. These high i content pellets are becoming av able from points as near as Up Michigan.

Availability of Oxygen

A third contributing factor is creased availability of oxygen. only is liquid oxygen more easily tained (which costs less to trans and store than the gaseous oxy which has been often used in past) but competition among pro ers is increasing. National Cylin Gas is increasing liquid oxygen put at its new plant here. Liq Carbonic is studying the field paratory to getting into the swim, Linde is expanding its liquid oxy output as befits the pioneer firm this development.

Chicago steel is gaining gro with as much steam as it ever And it is sitting atop the most namic market potential in the tion. It just has to grow.

Food

(Continued from page 87)

ranging in weight from ½ to 3½ lbs. with equal ease. W. H. Longenbaker, IGA's director of store engineering, says approximately a dozen of these robots will be enough to handle all of the items presently shelved in today's typical supermart.

Mr. Longenbaker adds that within the next few years, batteries of vending machines will be common sights in and around many grocery stores. Already one store, operated by the Grand Union Supermarket chain in East Paterson, N. J., has made the switch. Since November, 1956, it has been machine-vending bread, milk, eggs, margarine, frozen meats and fish, coffee, and tea. In Europe, vending machines dispensing a wide variety of products are parked in front of many stores.

Some of the foods sold in tomorrow's supermart undoubtedly will pass through an atomic furnace before they get there. Since the end of World War II, the Food and Container Institute of the U. S. Quartermaster Corps, headquartered in Chicago, has been sponsoring research into possible uses of nuclear energy as a food preservative. There are still a number of sticky problems rem ing to be solved. However, ato irradiation, in its present state o velopment, makes it possible to many perishable foods far lo than when conventional prese tion techniques are used.

Electron Generator

The basic process involves pu a food item — meat, poultry, fr or vegetables — close to a sourc high-energy electrons. This so may be a glorified X-ray mac known as an electron generator, may be a "waste fission prod typically a rod of radioactive co Depending on the dosage, the trons emitted kill either all of bacteria microorganisms in the that are responsible for decay most of them. In the former the food comes out sterilized, ir latter it is pasteurized.

Here is what atomic irradia has been able to accomplish in laboratory to date:

Bacon, pork or beef liver, and sausage have been kept fresh tasty without refrigeration for months after receiving steriliza- dosages of irradiation and being kaged properly. Pasteurization ges, followed by refrigeration, e enabled beefsteaks to withstand o three weeks' storage in perfect dition, and have kept hamburger ks, beef and pork roasts, and r pork products in similar condi- for up to 30 days. Cured meats ch now last no more than a week two in the average refrigerator e been stored for a month after level irradiation, without any ceable change in quality.

rradiated potatoes have been ed up to three years without outing, while the refrigerated of cole slaw has been increased n about five days to 25 days. ally dramatic increases have been ained with irradiated samples of ive, peas, peaches, corn, bananas, nes, tomatoes, cabbage, and a nber of other fruits and vege- es.

Leading Role

he American Meat Institute ndation, located on the Univer- of Chicago campus, has played a ling role in irradiated food re- rch. Says Dr. D. M. Doty, AMIF's ciate director of research and cation:

We probably will see mass pro- tion of irradiated food within ten s. The process is likely to be used ially for military rations, and for ting foods distributed in coun- s which lack conventional refrig- tion equipment. The American sewife will be among the last eficiaries. However, irradiation cessing provides a number of efits that make its entry into this ket both desirable and poten- ly feasible. Liver, bacon, fresh k cuts, and prepared products like 'TV Dinner,' are likely to be ong the first irradiated foods to pear in the corner supermart."

number of industry officials ee with this estimate. Says Libby, Neill, and Libby Vice President n T. Knowles: "It still may take other ten years before sterilization irradiation becomes practical, but elieve the next five years will see application of pasteurization by diation to fresh and refrigerated ats, fresh and frozen poultry, and tain fish."

The milk industry, which has had only indifferent luck with atomic irradiation, is attempting to solve the preservation problem via a different route. Researchers for several companies are subjecting milk to high heat for short periods of time in an attempt to sterilize it. Potentially, the process has great importance, since it would give whole milk indefinite storage life without refrigeration. The milk could be reduced to a powder, which would cut its weight drastically, and shipped long distances without fear of spoilage. Whole milk powder would be of particular benefit to certain areas of the country, such as the South, which now have milk shortages during the summer months that have to be made up with expensive tank car and tank truck shipments.

Other researchers, meanwhile, are working on new chemicals to prolong the shelf life of cookies and crackers. Two such chemicals, already in use, are known as BHA and BHT. They show definite promise of being able to prevent or retard

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spoilage in a number of other foods as well, including frozen turkey, frozen pastry and dough, and frozen french fried potatoes.

Several bakers are trying to develop a partially baked, quick frozen cake. Baking mixes are being improved too. Frosting mixes, introduced about two years ago, are becoming available in a steadily growing number of flavors and varieties. Mixes in general are becoming more convenient to use: major trends are toward smaller packages (to eliminate leftovers) and elimination of the sinkful of dough-encrusted baking utensils. Mix manufacturers are getting around the latter problem by putting disposable aluminum baking pans in their packages.

New Processing

A number of other new food processing ideas and products are in various stages of development. Soft drink manufacturers are working on enzymes that preserve the flavor and color of their products for longer periods. Processors of cooked foods are experimenting with high frequency electronics in the hope of reducing their production time and expense to a fraction of what they are at present. Poultry processors have just begun reaping the benefits of years-long research into the use of the "miracle drugs" as preservatives.

In 1955, the U. S. Food and Drug Administration okayed commercial use of the antibiotic aureomycin for increasing the storage life of turkey and chicken. Fowl treated with minute quantities of aureomycin stays fresh up to 100 per cent longer without refrigeration, up to 300 per cent longer with refrigeration. American Cyanamid, which developed the process, has produced similar results with fish. Researchers are now studying the application of antibiotics to such other food products as meats, fruit and vegetables.

Of all these processes, the one with the greatest immediate potential probably is quick freezing. The technique is not new, of course, but only since World War II have packers been able to market quick frozen meats successfully.

M. A. Cox, consumer packa
frozen foods manager for Swift &
states: "Nobody can accurately f
cast how extensive the market
packaged frozen meats really is.
see estimates that within a dec
sales may be half of the total of
meat distribution. However, a m
conservative outlook is that pro
tion and consumption may be so
what less than this, possibly acco
ing for 10 per cent of the t
volume within the next sev
years."

D. B. Love, frosted meats divi
manager for Armour & Co., is equ
optimistic: "The growing statur
frozen meats in the overall food
tailing picture is pointed out
numerous surveys, and it is no tr
secret that many food retail lea
are looking toward packaged fr
meats as their biggest potential
increasing volume."

Convenience

There are many reasons for
food technology revolution,
basically they can all be summe
in one word: convenience. To
housewife lacks the time and inc
tion to be the kitchen slave
mother and grandmother were;
modern homemaker, furthern
has the money to pay for an e
of her chores.

Food processors are quite hap
take over from the housewife as
as she and their own research
permit. For, as it becomes easi
convert a bag of groceries in
meal, the processors' opportuni
perform a service and make a p
grows. This gradual increase in
processing function is expected
a major factor in the growth o
food industry in coming y
There's another factor, though
least as important: the changes
taking place in America's popul
makeup.

The major changes were su
rized by Nathan Cummings, he
Consolidated Foods Corp., an in
try giant which has its headqua
just outside Chicago. He stated
"Our population growth since
has been the fastest since the
of the century. And nearly ha
the population increase in r
years has been made up of chi
under 10 years of age. Becau
rising longevity, the numbe
grandparents is also multiplyin

Planning For The Future

Since its formation, the Midwest Stock Exchange has grown faster in both share and dollar volume than has any other major exchange in the country.

This growth didn't just happen. It is the result of two things—Chicago's own growth industrially, which has been the largest in the nation in recent years, and careful planning and action by governors and administrative officials of the Exchange.

They recognize that Chicago has a brilliant future as a leading financial center destined to serve a steadily expanding area. And they feel Midwest will serve admirably as a focal point for such development.

The Midwest Stock Exchange now

..... **holds the rank of third largest securities market in the country, and largest outside of New York.**

..... **has 400 members, with national coverage represented by partnerships and corporations which maintain 1500 offices in 46 states.**

..... **has nearly 200 operating members who belong to no other exchange.**

..... **has greater representation in 11 states (Illinois, Colorado, Minnesota, Iowa, Missouri, Kansas, Kentucky, Nebraska, Indiana, Ohio, and Michigan), with a population approaching 50 million, than has any other exchange.**

Thanks to the foresight of those leaders who are determined to make Chicago a great metropolis, the city's financial machinery—its banking and underwriting facilities, as well as the Midwest Stock Exchange—are tooled and geared to meet any demands of the future.

of these factors are built-in levers future expansion in the period d.”

ow much will research and insing population affect food inry volume? One estimate comes Dr. W. W. Tongue, economist Jewel Food Stores. He believes th in dollar sales during the next al years will average between and six per cent annually. Probthere will be a number of shifts ood demand, he adds. Most ble will be the growth in sales uick frozen fresh and prepared s, mixes, and other convenience s.

Future Growth

icago and the Midwest are desd to play an increasingly imporrole in the future growth of the on's food industry. The city and nvirons are already the center production and distribution of y food products.

he sprawling Chicago Stock s is one example: the “yards” handle more than 40,000 cattle 120,000 hogs a day, and can turn meat at the rate of 10,000 pounds nute.

icago is also the largest cold ge warehouse in the world, and dairy industry's board of trade is Chicago Mercantile Exchange.

ore potatoes are traded here than other place in the world. Chiis also a major distribution t for other types of fruit and ables. It is the third largest center, and leading members st about every branch of the manufacturing fraternity have s and/or headquarters here. world's largest cheese factory he world's largest corn refinery oth located in the Chicago area; ormer is owned by Kraft, the by Corn Products Refining Co. endous quantities of canned packaged foods are turned out e Chicago plants of such firms onsolidated Foods, General s, Campbell, and Heinz. Bakhe second-largest food processndustry, is represented by such as General Mills, Ward, Contal, and National Biscuit, to ion just a few of the 200-odd esale bakers listed in the phone Borden, Lever Brothers and den are other leading food manufacturers with plants here. Chicago is also the headquarters of two of the nation's major grocery chains, National Tea and Jewel.

In most of these plants, automation has found additional work to do. Along with their confreres in other fields, food machinery engineers are striving to develop a push button factory. The goal is a long way off; slowly and steadily, however, progress is being made.

What about the Seaway's effect? Chicago is already exporting and importing sizable quantities of a number of food items. In 1955, the following import items passed through the port: 2,000 short tons of cheese, 5,500 of canned fruits and bottled jellies, 1,600 of edible vegetable oils and fats, 5,000 of sugar, and lesser quantities of fresh fruits and vegetables, canned fruit juices, nuts, tea, and spices. Major exports included flour and flour grain preparations, molasses and sugar products, vegetable oils, fats, and waxes. Small quantities of canned vegetables and preparations, canned fruits and preparations, and beverages — alcoholic and otherwise—were also sent abroad through the Port of Chicago.

The Seaway should expand this traffic in several directions. According to studies made by the Chicago Association of Commerce and Industry, an all-water route will cut the present shipping cost of such imports as jams and marmalades from the United Kingdom, and sardines and cod liver oil from Scandinavia, by ten to 28 per cent. Savings of up to 38 per cent are possible on shipping costs of such exports as lard and powdered milk.

Shipping Cost Down

George Kasper, coffee buyer for the National Tea Co., believes there is a good chance the Seaway can lop about a dollar off the present cost of bringing a bag of coffee from South America to Chicago. The present rail-water rate, through New York or New Orleans, is a little over $3. National Tea's olive buyer, C. F. Ohlson, reports that at present, the firm is saving six cents a gallon by importing olives through Chicago, rather than through an ocean port. He believes that when the Seaway

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opens and larger ships can come through, this differential is likely to increase.

It would seem that Chicago, already the center of food distribution for the nation, is on the verge of still further expansion. The proliferation of new plants and plant expansions here during the past few years makes it clear that the food industry in general considers the Midwest of key importance, not only as a distribution center, but also as a manufacturing and marketing area of great and growing value.

Aviation

(Continued from page 57)

and the airlines estimate there will be 100 jet flights here daily by 1960. So Chicagoans will be seeing a lot of the long range American built jet transports, Douglas Aircraft Co.'s DC-8 and Boeing Airplane Co.'s 707.

The two are quite similar in cruising speed (550 to 575 miles an hour), price (over $5 million) and passenger capacity (about 120 first class seats, or as many as 155 in the tourist
coach). In exterior appearance
are difficult to distinguish from
other, both having swept-back w
from which the jet engines are
pended in pods. The airlines c
one or the other largely on the
of promised delivery dates and
builder's willingness to make m
design modifications for indivi
purchasers.

United, Eastern Air Lines
Delta Air Lines selected the Dou
plane, while American, Braniff
ways, Continental Air Lines
Trans World Airlines ordered
Boeing 707. Pan American W
Airways bought some of each.

In addition, TWA and Delta
chased medium range 600-mil
hour Convair jets, and Capital
lines ordered 14 British Co
However the smaller, some
slower and more economical tu
props, in which propellers su
ment the jet power, figure to d
nate the medium range routes,
Chicago to Cleveland or to St. L
for instance.

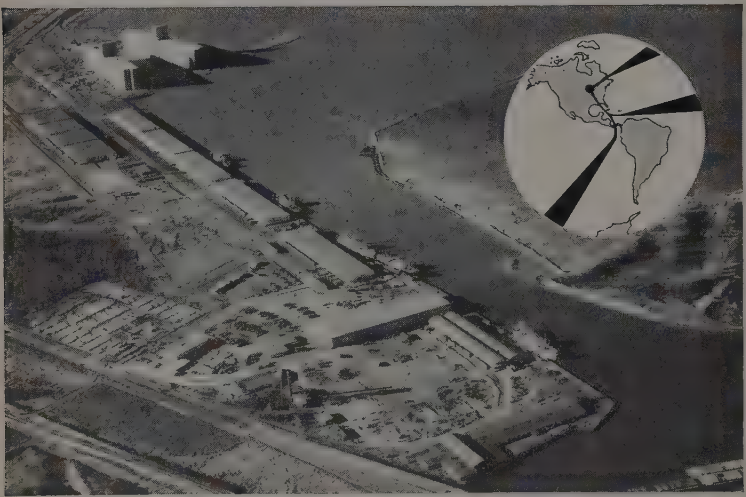
Capital has operated some Br
Viscounts between Chicago and
ern cities since the summer of
Next year Capital and Contin
will place more Viscounts in se
and Lockheed Aircraft Corp. wi
gin to deliver its turboprop El
to American, Eastern and Brani

In all, U. S. airlines have co
ted over $2 billion for some 40
and turboprops. This is in adc
to about $500 million worth o
piston engined planes still bei
livered. The latter will be us
medium and short range coach
ice and on local feeder lines i
1960's.

Jet Airliners

Still more turbine powere
planes will take to the air in th
decade. Donald W. Douglas,
dent of Douglas Aircraft, ha
dicted that an additional 150
jet airliners will be ordered i
next five years alone.

In preparation for the int
tion of jet travel, government
cies, airport officials and the ai
are at work on major improve
in ground facilities to handle t
pected increase in passenger v
The CAA, the federal body r



Chicago Regional Port District

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BACON, WHIPPLE & CO. since 1927 has been prominent in underwriting the capital needs of private industry and municipalities in the Chicago metropolitan area. The financing of the Chicago Regional Port District, in which we actively participated, has been of special interest to us. Shown above are the initial facilities located on Lake Calumet just south of Chicago. This is not only the natural terminus of the St. Lawrence Seaway but also the entrance to the Mississippi waterway.

A University of Chicago study made under a research grant provided by Bacon, Whipple & Co. has described this port as the finest, most advantageously located of any on the Great Lakes.

Bacon, Whipple & Co.

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for traffic control on the nation's ays, completed a new air route illance radar system at Chicago's way early this year. The $400,000 llation, capable of detecting air- as far as 130 miles distant, is of a planned nationwide net- of 73 such systems designed to planes at safe distances from another and thus minimize the rd of collisions in the air. The has spent a total of more than illion on traffic control equip- for the Chicago area in the past years. It's now in the midst of a million program for improve- of traffic control facilities nd the country.

Runway Extensions

icago's airport authorities are ahead with plans for runway nsions and additional taxiways erminal buildings at both Mid- and O'Hare. An 8,000-foot run- designed to take the jets' heavy was opened at O'Hare last fall. and other runways there can xtended to 10,000 feet and be- if such lengths are required.

In contrast, Midway's longest runway is 5,500 feet, and since the field is one-tenth the size of O'Hare in acreage, there's room for only limited expansion.

Airline officials say that if O'Hare is to be ready for the jets in 1959, the number of runways must be doubled, the terminal space must be tripled, the number of gate positions more than doubled, parking areas enlarged, and underground fuel storage and servicing equipment installed.

Looking farther ahead, the next decade may witness some radical changes in airport facilities for the traveler's convenience, such as long conveyor belts to carry baggage, and docks, platforms and underground ramps that will provide sheltered passage for persons boarding or leaving planes.

For their part the airlines are concentrating on ways to improve their service while holding fares down as their business becomes increasingly competitive. The carriers are broadening their route structures and scheduling additional flights to make travel to and from Chicago to a variety of distant points even easier. For instance, United, TWA and Northwest Airlines are seeking authority to fly the Chicago-Miami run, now served only by Delta and Eastern.

Although modest fare boost is imminent this year, the growth of coach service and special low fare arrangements points to a continued downtrend in the average charge for plane trips. And in the international sphere, fare reductions taking effect during the next year are expected to bring overseas travel within reach of a vast middle income group which until now has considered the cost prohibitive.

Faster Ticketing

Another aim of the airlines is faster, simplified ticketing and reservation service, in a greater number of convenient locations — as exemplified by Eastern's recent opening of a new ticket office on the main floor of the Merchandise Mart.

Related to this effort is the plan for a consolidated downtown air terminal. The Chicago and North Western Railway has offered the first floor of the North Western Station, and

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Phone: L.D. and Chicago BIshop 2-2300
Teletype: Berwyn, Ill. 2781
Waterways Location: Harlem Ave. Bridge, Mile 314, Illinois Waterways

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Abraham Feldman, President.

this site, or the nearby Union Station, appears most likely to emerge as the choice of the airline representatives studying the matter, although their committee has considered as many as 22 other proposals, most of which would require construction of a new building.

An advantage in the North Western Station, aside from the fact that the physical structure already is complete, is the railroad's idea of extending tracks from its suburban lines into O'Hare Field to permit 28-minute shuttle service to the airport.

Limousine Service

Meanwhile the airlines are looking to the Northwest Expressway for speedier limousine service to O'Hare. By surface transportation O'Hare is now about an hour from the Loop, and the trip to Midway rarely requires less than 45 minutes. Helicopters now in service cover the flying distance from the Loop to Midway in six minutes, and to O'Hare in 12 minutes. However the 'copters are too small to carry more than a few of the airlines' riders.

Early last October the Helicopter Airlift division of Skymotive, Inc., inaugurated a "helicab" shuttle service to the airports from a platform 28 floors high on the Conrad Hilton Hotel roof. Bell helicopters carrying two passengers and 100 pounds of luggage at 90 miles an hour are used. At $13 to $15 per person, the service is intended mainly for busy executives.

Helicopter Airlift also operates radio dispatched flights, on call, for more than a score of industrial firms around Chicago, and the company has been negotiating with public officials in north and southwest suburbs to offer air transportation between these towns and the city.

Corresponding more closely to an airborne bus line is the service currently provided by Chicago Helicopter Airways. Using seven-passenger Sikorsky S-55's, this firm initiated flights between Midway and O'Hare last November at $5 plus tax. Recently more than 1,000 persons a month have been taking the flights.

Last April 1 the company began flying a triangular route between the airports and Meigs Field near the Loop. Larger, 12 to 14-passenger Sikorsky rotor planes are being placed in operation this year.
prospect for the future are pas
ger flights to and from the sub
whose mail is now carried by
copter.

The expansion plans of these
operators, and the fact that heli
are being installed on the roof
downtown buildings (the new
Times building is the latest to
one), indicate that before too l
Chicagoans will be able to fly t
most as many places via the "wh
birds" as they can now reach on
ground. The helicopter shows p
ise of benefiting commuters as
ger models, capable of carrying
to 50 passengers at low fares, em
from the designers' drawing bo
and go into mass production.

Also taking to the skies in gro
numbers around here are privat
craft owned by businesses and
viduals. The CAA estimates
will be nearly 108,000 non-ai
planes flying by 1970, compared
65,000 today.

Business Flying

Some 7,000 companies in
United States, including mar
Chicago, operate an estimated 2
planes for business flying, princi
to permit executives to hop be
plants and offices quickly. For
ness planes the total of annual
hours is more than triple that
airlines' fleet of 1,500 aircraft.

Currently there are over
pilots and more than 3,500 p
and corporate aircraft register
Illinois, with Cook County acc
ing for about 3,500 pilots and
planes. These figures can be exp
at least to double in the next d
creating additional traffic for
Field on Chicago's lakefront —
now boasts well over 3,000 pla
rivals and departures a mont
well as the county's 23 other ai
and landing areas.

Private and business planes
from Bell helicopters and sing
gine, four passenger, fixed win
to converted twin engine ai
such as the DC-3 and Convair-
Between these extremes in siz
cost are new twin engine mod
ing introduced by leading p
aircraft manufacturers such as
Cessna and Piper, which sell
than $100 million worth of
planes a year.

Turboprop and pure jet
ultimately will predominate

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NEW YORK **BOSTON**

l plane market as well as in the nes' fleets. Fairchild Engine & lane Co. recently started selling l turboprop and jet planes, and heed is considering production t corporate aircraft. British Vis- nts are being bought by a few big panies. Continental Can and . Steel are among the corpora- that were the first to order ine engine business planes.

sides the transportation of per- aircraft are becoming increas- prominent as long distance ers of freight, chiefly machine , textile goods and other small, weight articles. Last year's vol- of air cargo is expected to dou- by 1965 and triple by 1970 as er, more efficient airfreighters developed, the spread between and surface rates is gradually owed, and daily nonstop service tended to more communities.

ne combination passenger-cargo nes such as United, American TWA predict their aggregate volume of 90,900 shipments will to nearly 133,000 this year. The cargo carriers — Slick Airways, ng Tiger Line, and Riddle Air- — which handled 45,000 ship- ets in 1956, should show similar s.

ost of Chicago's 30,000 tons of freight annually now moves ugh Midway Airport, since only concentrates its cargo opera- at O'Hare Field. But the bulk e business will be transferred to new airport as more passenger ts are shifted there in the com- years.

nvestment Banking

(Continued from page 64)

rge amounts. When bonds were ing six per cent and more, in- nent bankers had a gross margin wo to five points, or $20 to $50 $1,000 bond. It would pay a man to call on the customer who hased two or three bonds at a Now the banker's spread es from less than a point to t 1½ points. The widespread ase in competitive bidding, of e, has been a factor in reducing nvestment banker's profit mar- n

hile high income taxes were nating the individual as a bond r, his departure was more than offset by the tremendous growth of insurance companies, trust funds, pension and welfare funds, and other "institutional" investors operating under laws that require them to invest most of their funds in debt securities. It takes only a few salesmen to cover the institutional field.

Investment banking firms have added the underwriting and distribution of stocks to their bond business, and have found it profitable to send salesmen out to solicit the individual investor in stocks. One firm with an exceptional record of growth reports that its sales currently are about 60 per cent stocks and 40 per cent bonds, as compared with about 25 per cent and 75 per cent, respectively, in the 1920's. Like many other houses today, it is also active in the distribution of shares of mutual investment companies, and has developed a large volume of business as a broker for shares listed on stock exchanges. In contrast to the shrinkage in the sales force of the house that continues to deal only in bonds, this firm employs nearly 100 salesmen in its home and branch of-

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fices, as compared with about 50 in 1930.

There's a trend toward decentralization of investment banking in Chicago. Two firms with large brokerage business have had success with branch offices located on Michigan avenue, and one has doubled its space there after only three years. Another large firm has announced that it will open a branch on Michigan avenue. The time may come, says one banker, when branches will be opened in numerous locations, such as shopping centers, for the convenience of investors.

Corporate Bonds

A continuation of higher interest rates, if it were accompanied by a substantial cut in income tax rates, could have a considerable impact on investment banking. The private or individual investor might become interested once more in corporate bonds. On the other hand, if chronic inflation prevails, investors will shun fixed income obligations except for short-term employment of funds, and will seek to preserve the purchasing power of their capital and investment income by putting their funds into common stocks.

Institutional investors such as insurance companies have been unhappy about small yields on bonds and the shrinkage in the dollar's value. Heavy pressure has been building up to permit these important holders of capital to invest more in common stocks. Some liberalization of restrictive laws and regulations has already taken place.

Banks have been virtually eliminated as buyers of securities for investment in the last couple of years because they needed every dollar for loans to their customers. And if money remains tight, banks will be selling investments to get additional lendable funds.

Large commercial banks are in the investment banking business to a limited but significant extent as underwriters and sellers of municipal securities that are full obligations of the issuing governmental bodies. The banks now want a liberalization of banking laws that would permit them to sell "revenue" municipal bonds. The interest and principal of these securities are secured only by the revenues received from a particular operation such as a transit system or toll roads.

A perennial problem of investment and brokerage houses in the past, the paper work in the "back office," is being solved by the use of machine accounting. One firm reports that it now has fewer clerical workers than several years ago when the volume of business handled was less than half the present total.

The functions of the investment banker are indispensable to a competitive, free enterprise system. It follows that if the nation grows and prospers, investment banking will do likewise. But investment bankers more and more are taking a larger share of responsibility for informing their fellow citizens about the nature of free enterprise, especially as it relates to investments. Their efforts in this respect during the next decade and more may prove as valuable as the services they perform in linking investors with enterprises that require capital.

Recreation

(Continued from page 48)

the world that has preserved its shores and beaches for its residents, and most of the suburbs have followed this example. From the Wisconsin to the Indiana state lines, much of the Lake Michigan shore presents sandy beaches, pleasure boat harbors, landscaped drives, and parks. Twenty-eight miles of the city's lake shore are under the jurisdiction of the Chicago Park District.

Chicago's enviable park system has grown from the consolidation in 1934 of 22 former park districts. The District is tax supported and provides the locations for many of the city's cultural and scientific institutions, such as Shedd Aquarium, Chicago Natural History Museum, Art Institute, Goodman Theater, Chicago Historical Society, Academy of Sciences, and Museum of Science and Industry. Proposals for further consolidation would bring all municipally owned parks and recreational facilities under a single administration.

Since the city council established the first park in 1839 on the site of the present central Public Library,
the concept of public recreat
areas has shifted greatly. The p
of the past, whether large or sm
tended to be static and merely o
mental, a quiet and often for
green space where a quieter gen
tion indulged in dignified Sun
afternoon walks. Chicago still
such a park, in Washington Squ
Dearborn St. and Walton Pl., es
lished in 1842.

Today's park is geared to the m
iad activities of a leisure-loving
a modern viewpoint in which
cago parks have pioneered.
fieldhouse program, with trained
sistance and supervision for sp
and recreation of all kinds, was
stituted by Chicago park officials
1905.

"Totlots"

Tomorrow's park, which alre
can be found in many Chic
neighborhoods, will meet a still
er need. Recreation experts obs
that as urban centers grow la
and more closely built, and
make-shift vacant playlot disapp
families need smaller recrea
areas close to their homes. "
lots," or small playlots, have be
to sprout in Chicago apartm
areas. Here mothers may take
school children to dig in the
box, take a turn on the swings o
joy an adventurous climb on
jungle gym.

Older children want a playgro
within safe walking distance, wi
multipurpose athletic field, toge
with equipment and game co
Adults seek a bench and a bi
greenery for relaxation and a b
ing for crafts and hobbies.

The park of the future, for w
the Chicago Plan Commission
established standards, will r
from 2,300 square feet for a to
to a community park about one
in size, or a district park of 15 t
acres. As new park lands are
quired and developed, local park
thorities employ these standards
guide. Most of the 245 parks
playgrounds of the city Burea
Parks are of this character, as ar
but the largest of the 167 p
maintained by the Chicago Park
trict. Continued expansion aim
ward the goal of bringing every
ily within three-quarters of a
of a park.

The larger parks, too, contin

ctor's new, completely automatic printing calculator with the

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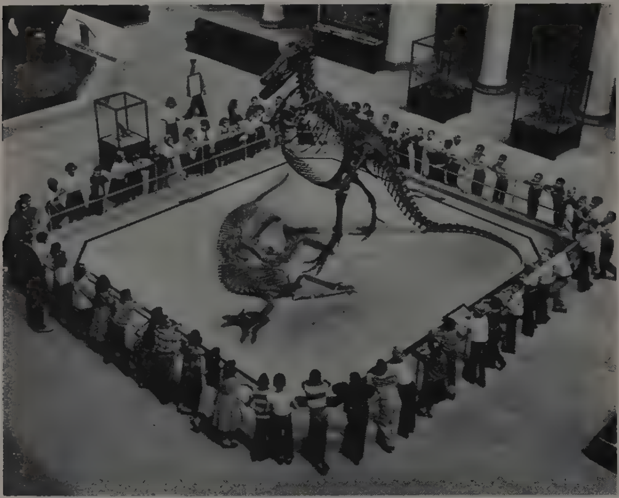
Chicago Museums Lure Many Sightseers


Two dinosaurs enact a scene at the Chicago Natural History Museum which may have occurred 75 million years ago

Costumes of 1856 on display in the cost
gallery at the Chicago Historical Society

University students examining a half suit of English armor made in 1590 on display in the George F. Harding Museum

A special display of transportation equipme
yesterday at the Museum of Science and Ind

grow in size and facilities. Relocation of the north end of Lake Shore drive has permitted extension of Lincoln Park eastward and to the north of Foster avenue. Landscaping, lights, walks, etc., will be completed this year, and a new beachhouse and other structures will be built at the Foster avenue beach. Throughout the park system, fieldhouses are being enlarged and new ones built, together with additional swimming pools and beaches. Artificial ice rinks, a sheltered Music Court to replace the Grant Park bandshell, and an extended Lake Shore drive that would run from the north city limits to the Calumet Skyway, providing new shore line park space, are among the plans park officials confidently hope to see realized within the next two decades.

At Lincoln Park Zoo, locale of television's "Zooparade," the children's zoo soon will occupy new year-round quarters, close to the playground and pony track near Webster avenue, in what will constitute a children's section. The children's zoo is Chicago's stellar attraction among the younger set, for all animals
be handled . . . . and adults are
invited! Grownups may watch
wait, but little girls are free to
dle baby racoons and properly
scented skunks, while small boys
plore garter snakes and
without parental inhibition.

So successful has the children's
become that this year Director
lin Perkins is sending a portion
around the city in a 30 foot air-
ditioned trailer. Complete w
striped awnings, public address
tem and a zoologist, the travel

will visit parks, bringing its mi- lously "handleable" animals vir- ly to the small fry's back yards. he Zoo's master plan for the fu- calls for a large animal house hibit hippopotamuses, rhinocer- elephants, giraffes and tapirs. struction of the large animal e will permit shifting of some nts from the small mammal e and its subsequent remodeling. reafter, the plan calls for a sep- building to house anthropoid a penguin house and a farm ex- of domestic animals.

Scientific Projects

hind the scenes and largely un- vn to the Zoo's four million an- visitors, numerous artistic and tific projects are conducted. An- behaviorists study the anthro- apes; hair is collected for phy- ns working on human allergies; tumors are saved for research uman tumors. Musicians come ecord bird and animal sounds; essional photographers fulfill commissions; painters and tors find cooperative models.

Just outside Chicago is another famous zoo, the Chicago Zoological Park at Brookfield, supported jointly by the Forest Preserve District of Cook County and the Chicago Zoological Society. Opened in 1934 on 83 acres donated to the Forest Preserves by Mrs. Edith Rockefeller McCormick, the zoo has been constructed in the modern, "veldt" style of exhibits. Moats instead of bars separate visitors from the animals, and the large enclosures are landscaped with trees and rocks to simulate so far as possible the natural habitat of their tenants.

A Brookfield innovation is the grouping together of creatures who normally share the same environment in their wild state, such as antelopes and zebras sharing an enclosure with cranes and storks. In the Brookfield children's zoo and farm, many animals are at liberty to walk among their young visitors, all may be handled, and many may be fed.

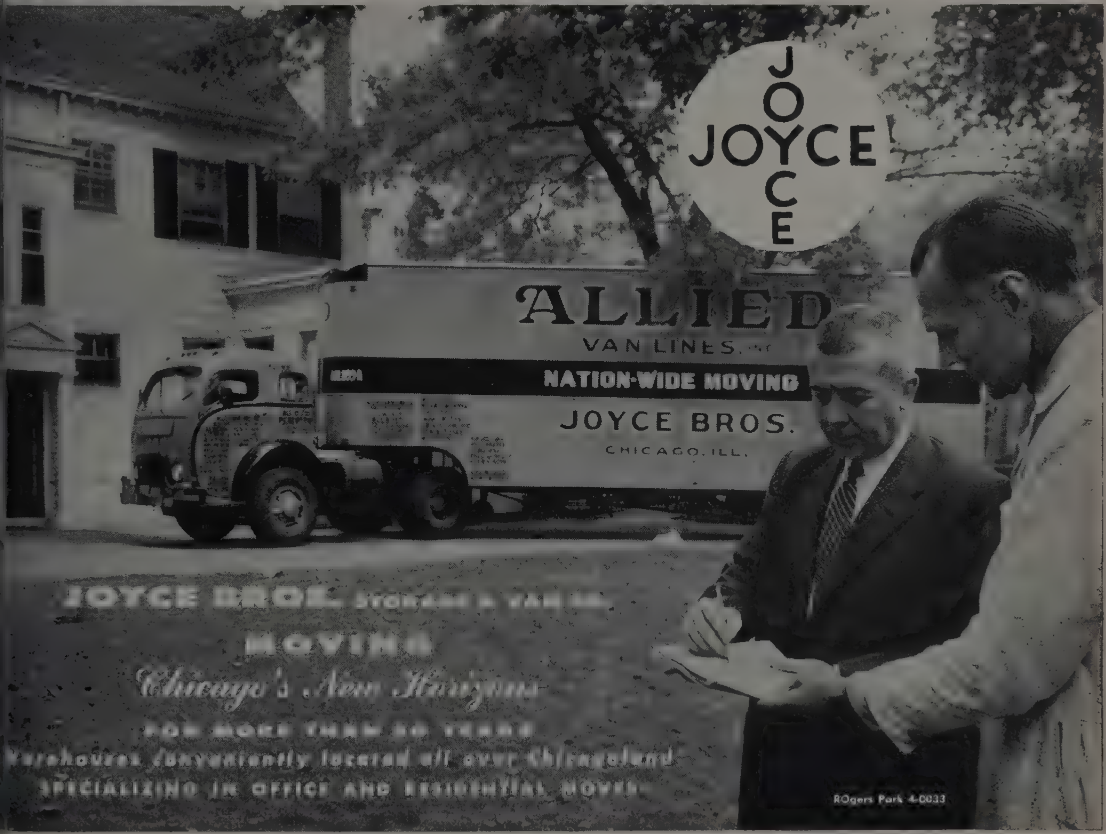
A Brookfield activity that attracts world-wide interest is the Annual International Zoo Photo Contest and exhibit, co-sponsored by the Chicago Zoological Society and the Chicago Nature Club. The only entrance requirement is that photographs shall have been taken in a recognized zoo.

Aid to scientific research also is an important function at Brookfield, including the testing of new veterinary and human drugs on animals in the Zoo's own modern hospital, opened in 1951.

Forest Preserve

Outdoor sports and activities are served by the nine divisions, covering 72 wooded areas and 125 miles of waterways, administered by the Forest Preserve District. Visitors may hike or ride horseback on 175 miles of trails, fish from boat or shore, sail, fly model planes in three designated fields, golf on six courses, swim in three pools, toboggan at four slide locations, or ice skate on the innumerable ponds, sloughs and lakes. Annual attendance last year was 15 million persons.

The District stocks its waters with fish, and the sport is open to all comers, subject only to state fishing laws. Two new artificial lakes recently have been added to District



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Looking into the future, we see an even greater flow of intercontinental styles and fabrics coming to America's new world port . . . and you can depend on Raymond Levine to bring you the best of the world, *"because you enjoy fine clothes."*

Raymond Levine

340 E. Kensington Ave.
Chicago

waters, Thornton Lake and Papoose Lake.

Cooperating with area schools and colleges, including those in Chicago, the District provides a nature study and conservation education service that includes illustrated classroom lectures, field trips and teacher training. The services of a District naturalist can be arranged for day camps, Scout troups and other groups using the Preserves.

One of the most popular District conservation efforts is the Little Red Schoolhouse Nature Center, opened in 1955. Located in the Palos Preserves, on Willow Springs Road near 95th street, the building contains nature exhibits of local plant and animal life, which are changed to reflect the seasons. Posted, self-guiding trails radiate from the building and similarly are labeled according to the seasons.

The Forest Preserve District plans a $20 million improvement program over the next 10 years to provide new parking areas, playfields, fishing areas and additional educational centers like the Little Red Schoolhouse. The improvements, recommended by a citizens advisory committee, would be located in Caldwell Woods, Schiller Woods, the Skokie lagoons, Busse Forest, Miller Meadows, Dan Ryan Woods and Oak Forest. They also would include additional picnic facilities in the Des Plaines River, Salt Creek, Tinley Creek and Thorn Creek areas.

The pleasure boat boom, which has been gathering new adherents at the rate of some 15 per cent a year since the war, finds an ideal locale in the Chicago area. Its s popularity is evidenced by the 23, boarding inspections made in region last year by the U. S. C Guard, compared with 5,280 in 1 Estimates place the number of b in the area at somewhere betw 50 and 90 thousand, from small boards and Penguins to 75- yachts.

Yacht Clubs

From Waukegan on the nort Michigan City around the so curve of the lake, there are at l 15 organized yacht clubs. Here in other parts of the country, p and harbor officials must race keep up with mushrooming pu demand for more harbor space launching ramps. With its harb as with the lake front in general, facilities have been kept under authority and open to the pu Chicagoland's opportunities boating are conceded to be the on the Great Lakes, and perh better than those of any other in city.

The numerous smaller inland l and rivers in the area rival L Michigan in popularity with w end sailors. Outboard boating, choice of many families becaus its mobility, has greatly incre on these inland waters in the few years. Ramps, parking areas all the other adjuncts to boating are being increased. Winter ice sailing is an up-coming sport in area, and there are an estim 500 ice-boats now in the Geneva-Fox Lake region.

Real Estate

(Continued from page 32)

expressways that would form large super-blocks throughout Cook county.

These super-blocks, according to Ralph J. Lueders, executive vice president of the First Federal Savings and Loan Association of Chicago, would be ideally sized for redevelopment, rehabilitation, or conservation of entire neighborhoods.

"Suburban type living will be possible in newly created residential sections closer to downtown," he said. "Older areas will get a new lease on life and new developments will spring up on reclaimed within the city."

With the new homes built 1945 have come companion dev ments — new schools, churches, s ping centers, and public build It is not uncommon for a bu to announce, with surprisingly fanfare, that he is breaking gr not for 10 homes or even 1,000 for a whole new community.

The science of land plannin being used increasingly by dev ers. Among the newer projects hard to find the "squared off" of land use that characterized subdivisions. A progressive ler wouldn't be caught dead on ight street.

t of all the marks of the new tryside, the most distinguishing e shopping centers, a by-prod- s it were, both of the housing and the automobile age. In hicago area they range in size the regional centers such as Orchard, Hillside, and Ever- Plaza, to small 10 unit centers ng the day-to-day needs of the suburbanites.

Public Housing

out one-fifth of all single family ng built in metropolitan Chi- since World War II has been n the city limits. Last year, for ple, Chicago accounted for of the total 39,919. In the ment field, Chicago has been head, although largely because blic housing.

ch of the private apartment ruction has been in the luxury in high rent areas, notably Lake drive overlooking Lake Michigan. Recently, however, a growing number of two to four story apartment buildings have been going up in other desirable areas. With land costs soaring, more apartment building is expected in the years ahead.

Financing has been a trouble spot in the building industry for almost two years. It was held responsible for a sharp drop in home building throughout the country last year. The Chicago area, however, is feeling the effects of so-called tight money less than other areas. Lenders attribute the relatively good condition of the Chicago market to what they say is the traditional conservatism of midwest financial institutions.

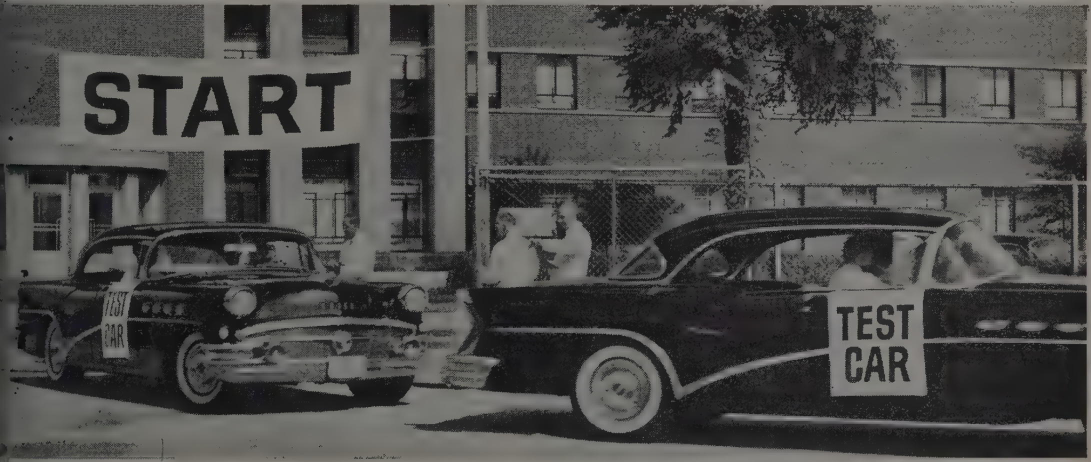
The no-down payment deal was the exception in Chicago even when credit was much easier. As a result, say the experts, there was no overbuilding here as there apparently was in some regions.

A recent development in the Chicago market has been the entry of large volume "mobile" builders from other cities. A Texas firm, Centex Construction Company, for example, is planning homes for about 16,000 people in Elk Grove Village near Arlington Heights. Winston-Muss Corporation, New York City, built more than 600 homes in Melrose Park and plans another big project in the Chicago region. F & S Construction Company, Phoenix, Ariz., is building hundreds of homes in Schaumburg township.

Plenty of Capacity

The Chicago Metropolitan Home Builders association, however, takes the stand that Chicago builders can adequately supply the housing needs of the community. "Chicago builders feel that future demand will not outrun the supply," a spokesman for the association said recently. "There is no shortage of homes here. Our builders have plenty of capacity – we haven't begun to show what we can do if the market demands."

The movement to Chicago of families from other parts of the country continues to be one of the major forces behind building here. In addition, there is in progress an upgrading of living standards – buyers are in the market for their



oad Tests Prove

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In a series of road and laboratory tests equivalent in duration to about four years of typical driving, an independent research organization proved that new Sinclair Power-X Gasoline with X-Chemical provides more power and lower operating cost because it: Eliminates harmful combustion deposits...drastically reduces spark plug fouling. Sinclair Power-X increases power in older cars, retains peak power in new cars.

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GASOLINE

SINCLAIR POWER-X

SINCLAIR POWER-X WITH NEW X-CHEMICAL

Sinclair Refining Company, 155 North Wacker Drive, Chicago, Illinois

second new home since the war. The industrial expansion of the entire region, of course, is what translates this potential demand into sales.

Here is how Arthur T. McIntosh & Co., one of the oldest subdivision firms in the area, appraises the future:

"The company is convinced that ultimately Chicagoland will be built up from the south end of Will county to the Wisconsin line and from Lake Michigan to the Fox river. . . . Because of the fantastic industrial potential of Chicago, no city in the world has as great a future for residential growth."

Retail and Wholesale Trade

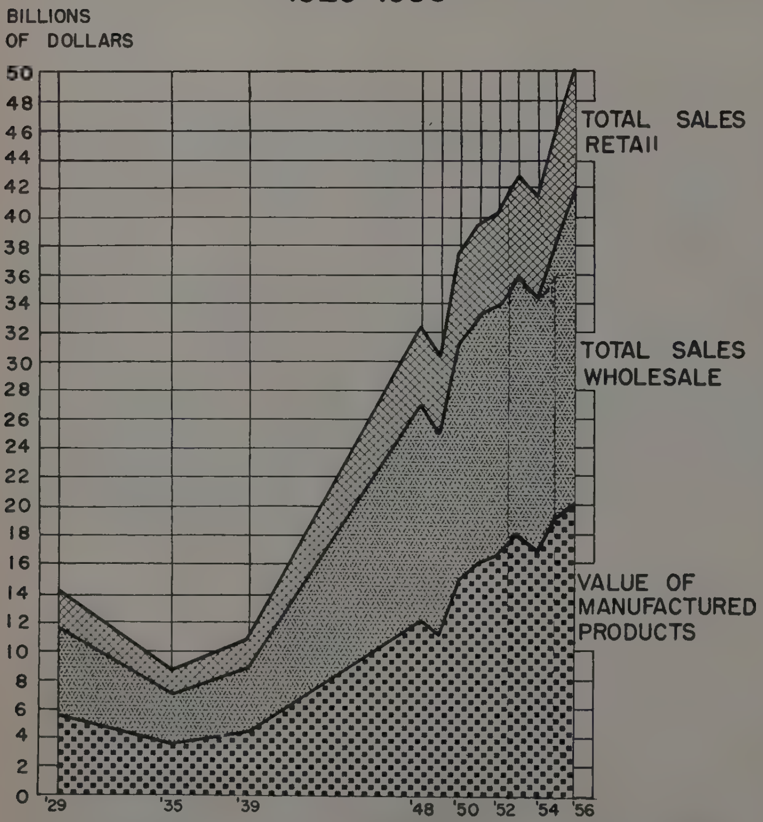
(Continued from page 55)

area's greatest one stop shopping center.

State Street will benefit also from the central business district's increased working population — totaling 250,000 today and estimated to total 325,000 ten years hence. More skyscraper apartments on the near north side will increase that area's population substantially. State Street and Michigan Avenue stores will benefit most from this increase.

Central business district stores will also benefit from the city's constantly increasing tourist trade (six million visitors in 1950, seven million in 1956) and from an ever enlarging trade show and convention business. No visitor to Chicago fails to do some shopping.

GROWTH IN TOTAL SALES OF GOODS
IN THE CHICAGO METROPOLITAN AREA
1929-1956



SOURCE: U. S. Bureau of the Census & The Chicago Association of Commerce and Industry.

PREPARED BY: The Chicago Association of Commerce & Industry, Business Research & Statistics Division

The tendency of Chicago area
tail stores in recent years has b
to grow more rapidly in size (aver
sales per store) than in numb
This process is expected to conti
over the next decade.

Retailers in some of the ol
shopping districts, at long last,
recognizing the imperative need
making those districts more att
tive to shoppers. What is more
portant, they are doing someth
about it. Rehabilitation is a s
and tedious process at best, bu
will show up in increased sales to
before another decade passes by.

Today only a few of the ol
business districts are conduct
long range promotional campai
Ten years from now, at least hal
Chicago's 75 business districts
be conducting them.

There is considerable argumen
to the total number of shop
centers in and about Chicago
cause of varying standards as to
constitutes a shopping center.
cording to one yardstick there
seventeen so-called one-stop s
ping centers already operating
this area and sixteen more u
construction or on the plan
boards.

A spot map showing the loca
of these 33 centers pictures tro
ahead for some of them, for n
are closely grouped, relying on
same trading area for support.
inevitable that the business wil
to the strongest competitors and
the competition will become ke
after the novelty of each new ce
wears off.

Shopping Centers

Announcements of new shop
centers should taper off sharply.
next big surge of such construc
will come perhaps ten years h
when heavily populated reside
areas will extend ten to fifteen
beyond present suburban reside
limits.

Fair Trade pricing is an arra
ment, made possible by a fe
statute and enabling state
whereby manufacturers can co
retailers who handle their goo
charge certain predetermined
mum prices for the manufact
products.

Over the past year, stores in
idly increasing numbers have
fused to continue handling

ed items. Manufacturers, first
and recently by the scores,
abandoned Fair Trade. Five
last year repealed their Fair
laws. Test cases involving
tutionality are now under way
other states including neigh-
Indiana and Ohio. There is
evidence to support the belief
the complete demise of Fair
will come quickly, perhaps
five years or less.

Catalog Departments

various sections of the nation,
supermarkets have recently
men's, women's and children's
or catalogue departments.
operations have sometimes
successful, and sometimes not.
probably only a matter of time
supermarkets master the tech-
of handling these somewhat
items. Once mastered, the idea
pread rapidly.

ally, as to the assertion that
ge appeal will largely supplant
or pocketbook appeal in most
advertising, it is evident that
uying motives of millions of
ican shoppers have undergone
three tremendous changes in recent years.

From a determination to "keep up with the Joneses," there came a change to indifference to the Joneses, and then a desire to buy only the best. The last named change has been one of the outstanding developments in the American consumer market in the last three years. The urge to buy only the best is everywhere apparent and alert retailers have been capitalizing on it. Last summer, Paris fashion salons were astonished by the appearance, said to be the first time in history, of Sears Roebuck and Company apparel buyers. Early in 1957 two brand new Cadillacs collided in Indiana. The owners and all of the other occupants were workmen enroute to their jobs.

Americans with money to spend generally spend it. As incomes go up the desire to spend for better and better things is intensified. If incomes continue to go up, retail advertising appeals to the pocketbook may largely disappear except for clearance sales and food items.

The late H. Gordon Selfridge, as a junior partner of Marshall Field and Company, accomplished tremendous things for that store in the 1880's and '90's by steadfastly adhering to his business creed which he stated as follows: "The whole art of merchandising consists of appealing to the imagination. Once that imagination is moved, the hand goes to the pocket. But, if the first appeal is to the purse, the imagination is apt to revolt and raise barriers against buying." Chicago retailers in increasing numbers may be counted upon to avoid all such barriers.

Additional Developments

Following is an assortment of additional developments which the next decade may bring about.

More and more stores are likely to establish branches or additional branches in newly built areas. Store owners are becoming increasingly aware that by adding stores they can increase volume without adding proportionally to operating costs. Chain store operators have known this for years.

More and more self service can be expected in many additional kinds of stores. The need to keep

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'ort of Chicago"

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hicago Metropolitan Area

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selling costs in line, and competition with industry for workers, will bring this about.

Organized groups of stores and more individual stores will provide their own parking facilities.

Installment selling will continue to have its ups and downs. Retailers as well as the Federal Reserve Board worry when there is more bounce in borrowing than in buying. They worry also when the situation is exactly the reverse.

One final item which will loom increasingly large in retailers' future plans is the matter of Social Security, or more specifically the buying power of those of their customers who are beneficiaries under the Federal Old Age and Survivors Act.

The number of these beneficiaries will increase enormously in the next ten years. They are important to the retail trade for all are consumers with an assured, fixed income as long as they live.

Figures on benefits paid out under the Old Age and Survivors program are illustrative of the vast stake retailers have in this program.

Here is the record of such payments made in December, 1956. Total beneficiaries in Illinois, 548,650 persons; total payments, $30.9 million. Total Cook County, 282,000 persons; $16.86 million.

Beneficiaries under every kind of pension plan are exceedingly important to retailers today and will become more so ten years hence.

Wholesalers Have Confident Outlook

CHICAGO wholesalers view the future with assurance, and their confident outlook seems justified.

There were 7,238 wholesalers in Chicago in 1929; 10,898 in 1954; 11,250 in 1956. Their total sales in these respective years were $6 billion, $17 billion and $21.3 billion.

For the nation, there were 200,000 wholesalers in 1939 with $54.9 billion in combined sales. There were 250,000 wholesalers, with $234 billion in 1954, and 265,000 wholesalers with $285 billion sales in 1956.

Substantial Growth

By any reckoning this can be called substantial growth. Here is what has been happening in the furniture business, for example. In 1939 wholesalers took 13 per cent of the furniture industry's entire output. In 1948 they took 16.9 per cent. In 1954, the last year for which complete figures are available, they took 21.64 per cent.

The same general trend is evident in many other lines of business, for wholesalers are successfully convincing a growing number of retailers and manufacturers that it is good business to do business with the wholesalers.

As one wholesaler puts it, "we are set up for the physical handling and shipping of goods at an operating expense so low, and at a profit margin so low, that it is to both the manufacturer's and retailer's advantage to use us. They simply cannot afford to pass us by." Whether or not this statement is over-optimistic, the fact remains that the nation's wholesalers are becoming increasingly important gears in America's distribution machinery.

Many years ago a Chicago wholesaler asserted "you can dispense with the wholesaler, but you can't dispense with the function which he performs." This statement is as true today as it was then.

A typical retail druggist's order, placed with a Chicago drug wholesaler today, may include 75 or more items from 60 suppliers, in 35 cities, in as many as 20 states.

In placing the entire order with a single wholesaler, instead of with the
several manufacturers, the drug
tailer saves time and money.
can devote a larger portion of
time to doing what he sets him
up in business to do — selling
wares to the public.

Typical orders placed with m
general line wholesalers reflect si
lar variety of products, and sou
and locale. The wholesaler prov
goods from places too distant
too numerous for the average i
pendent retailer to deal with. M
important, the wholesaler can
vide them conveniently, quickly
in quantities consistent with the
tailer's immediate demands, fa
tating greater turnover and sma
investment in inventory at the re
level.

Dr. Howard T. Hovde, vice p
dent of the Econometric Insti
and trustee of the National Ass
tion of Wholesalers, stated at
Boston Conference on Distribut
"Consistent with the growth pat
of the American economy, as m
ured by industrial production,
sumption and income, it is rea
able to assume that the nati
wholesale volume will increase
per cent over the next five years
40 per cent over the next ten ye

If Chicago's wholesale trade
periences the same growth, this
wholesale total will approxi
$25.6 billions by 1961 and $29.8
lions by 1966, for a ten-year gro
of almost 40 per cent.

Adding to Chicago's chances o
taining this growth will be the
proved St. Lawrence Seaway, w
will place Chicago wholesalers
better position than ever befor
compete in the nation's and
world's markets.

Trucking

(Continued from page 62)

Truck Leasing Co., Willett Co. subsidiary, now has 1,600 vehicles in its rental fleet.

Differences of opinion only serve to highlight the healthy competition that has built the trucking industry into a transportation giant. The differences aren't serious, however. Leaders in the industry such as Mr. Mullady and others emphasize that enough traffic will be available to keep all transportation media busy. "All modes of transportation will find their rightful places in the
omy," insists M. E. Holt, presi
Interstate Dispatch.

Development of the St. Law
Seaway is viewed as a prime re
why enough traffic will be avai
to satisfy everybody. Says Mr.
"As a result of this develop
Great Lakes ports such as Ch
and Milwaukee will thrive an
come perhaps the greatest in
ports in the entire world."

t authorities estimate that by
a million tons of general mer-
ise will move annually in and
f the Lake Calumet harbor fa-
with about two-thirds of it
ported by motor carrier. By
the freight total should triple
960 figure.
eady, with the Seaway opening
wo years away, 23 truck lines
rving the Lake Calumet port.
s can load or unload freight
ly to or from ships, using one
world's longest concourses, a
foot ribbon of concrete. A
00 five-acre truck center under
uction at 100 West 91st st.
ected to handle freight trans-
ed from Calumet Harbor.

uge truck terminal to cost an
ate $25 million is planned for
res of made land in Lake Cal-
itself by South East Terminal,
Sixty acres of the site have al-
been filled in. The initial con-
ion, costing $10 million, will
le 17 truck terminals, a 200
motel, a restaurant, and a com-
al building.

Highway Network

41,000 mile Interstate High-
network now under construc-
will be another major boon to
ucking industry. Studies made
U. S. Bureau of Public Roads
other agencies indicate truck
will move at least twice as fast
uper roads as over today's con-
nal highways. So truck deliv-
me will be halved in many

handle freight in this new era
t service, truckers will have
n terminals with automatic
t handling devices, electronic
tors, automatic teletype com-
ations, television cameras at
points, and a host of other
ts keyed to expedite as well as
le better protection for ship-
.

ht, easily handled tote boxes
emovable bodies will become a
f this system. Even today Spec-
cooperation with the Frue-
Trailer Co., Rail-Trailer Co.,
nnsylvania Railroad, and Clark
ment Co., is pioneering "Mo-
." With this system freight is
l into a box-like van. The van
ted onto a flat bed truck trail-
hauling to destination. There
n can be hoisted off in min-

utes. The vans, or the smaller tote boxes, can also be shipped by railroad flat car for a portion of their journey.

New expressways into the city will encourage trucking companies to locate terminals on the outer perimeter of the city. This should help relieve congestion downtown and improve truck service on local pickup and delivery runs.

Within another year or so a new $25 million terminal being planned for construction near Midway Airport by Terminal City, Inc., should help reduce pickup and distribution problems of many carriers.

Meanwhile, the trucking industry is undergoing a personnel revolution. No longer is it obtaining executives in haphazard fashion from among its ex-drivers. Recently, the industry has been attracting specialists from the banking, accounting, engineering, industrial relations and other fields. The transportation engineer is just beginning to make his weight felt. In the decade ahead this trend toward more technically trained personnel will be accelerated. Dozens of colleges will be turning out youngsters trained as transportation experts.

Spector recently established a Research and Development Committee vested with complete freedom in investigating all areas of the company. Only a few years ago the idea of

Growing with Chicago
for Half a Century

Just 50 years ago Hornblower & Weeks opened its first Chicago office in LaSalle Street. As the years passed and business grew, this office expanded many times, and eventually a second office was opened on Michigan Avenue.

We have enjoyed being a part of Chicago's growth for the past half-century and are looking forward to participating actively in its continuing progress. As underwriters and dealers in investment securities, we offer complete financial service to the area's corporations, communities and investors — both individual and institutional.

And we extend our heartiest congratulations and best wishes to the Chicago Regional Port Authority, which we have already been privileged to serve as an underwriter of the Authority's revenue bonds. The Port of Chicago will be a major contributor to the City's future greatness.

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spending money on research would have shocked many an old-time trucker. In another decade all major truck lines are expected to have research departments.

Research will help develop vehicles tailored to fit specific jobs. Chicago's own truck manufacturers —International Harvester Co. and Diamond T Motor Car Co. — will be among the firms offering new types of vehicles for the trucking industry of the future.

Gas Turbine Engines

Already at least three companies in the auto industry have gas turbine engines on which much research is being expended. The first use of these engines is expected to be in trucks. Air suspensions are viewed as a certainty for trucks and trailers within the next few years. Considerable progress is being made toward using magnesium, aluminum and plastics in trucks and trailers to reduce weight and pave the way for bigger payloads.

Entrance of the federal government into size and weight regulation on the Interstate Highway System is a significant development. It should hasten the day when sizes and weights are standard over the country.

This will accelerate trailer interchange. In another five years trailers may be interchanged among trucking companies as freely as railroads now interchange boxcars.

Trucks and trailers promise to get bigger. An eight foot six inch maximum width will be practical on the Interstate Highway System. So will a 60 foot overall combination length, while a 23,000 to 24,000 pound axle load isn't a wild dream. Such units, however, must await road test findings of the study now underway on a stretch of highway near Ottawa, Ill. This test is aimed at determining how truck traffic affects highways and how designs should be revised to minimize any adverse effects. Bigger trucks, of course, mean bigger payloads. This may be translated into lower freight rates, or — in an inflationary period — into fewer and less sharp rate increases.

The Highway Research Board, Washington, D. C., estimates that trucks will save 0.03 gallons of gasoline per vehicle mile over new superhighways. This could cut the trucking industry's gasoline bill by over $100 million annually — another factor which would benefit shippers.

As this new trucking era dawns it finds the industry poised on the brink of a merger trend. Many a trucking company was founded by a one-truck operator who continually plowed earnings back into the business to build and expand. Some of Chicago's biggest trucking operations emerged from such humble beginnings. But inflation, high taxes, and business growth far beyond earlier expectations, are making it impossible to continue expanding rapidly through internal financing alone. The only recourse for a substantial number of capital-pinched companies will be to merge with larger, better-financed outfits.

Consolidated Freightways, Pacific Intermountain Express and Spector are representative of big outfits which are growing bigger through mergers. Public financing, too, is expected to become commonplace trucking companies in the next ade.

"I see after more mergers more public financing perhaps 2 30 super-large companies and on few small ones," says Mr. Willet

Though the small trucking pany may be hard put trying to pete with the big lines in over-road, long distance trucking, t will be a place for the mode sized lines as distribution and s haul carriers. The trucking ind has always been a field of opp nity for the enterprising busi man who has a willingness to hard, a little imagination, an strong desire to render good se to customers. This situation tainly won't change in the tre dous period of growth ahead.

In the final analysis it will be shipper who will benefit most this growth and expansion. Al tention is being focused on pr ing better service to him.

Population

(Continued from page 30)

tive ease because of the availability of historical data for these areas. It is much more difficult to project the population for subdivisions of the counties. In general, however, even though no attempt is made in this article to quantify the increases, it may be stated that the greatest population increases which will occur within the ring are likely to occur at the peripheries of the "Chicago Urbanized Area" as defined by the census (see Map).

It will be observed that the Chicago urbanized area is characterized by seven major finger-like projections of densely settled population living in city block patterns. The northern finger extends continuously along the lake front from Chicago to Lake Bluff. The northwest finger extends from Chicago through Park Ridge to Palatine in Cook County. There are three fingers extending to the west. The northernmost western finger extends from Franklin Park to Itasca in DuPage County. The middle finger continues from Oak Park and River Forest to Wheaton in DuPage County. The southern western finger extends from Riverside and Brookfield beyond Downers Grove, in DuPage County. The finger to the south extends from Island, Calumet Park and River to Crete in Will County. Fin the finger to the southeast ext from Hammond through Gary East Gary to the eastern boun of Lake County, Ind. and be boundaries of the Standard M politan Area into sections of P County, Ind.

A considerable portion of the jected growth is bound to occ the peripheries of these finge extensions, as well as at the pe eries of the remainder of the u ized area. This, among other th means considerable increase in ulation in the unincorporated rural areas along these main lin population expansion. Furthe pinpoint the likely major po tion growth, it may be stated the three points of greatest gr are likely to be southern County as the result of the St. rence-Cal-Sag development, Lake County, Ill. and DuPage ty as the result of combined i trial and suburban developmen

The phenomenal growth o Chicago metropolitan area has mainly attributed to migra either immigration from Euro ration from inside the United [3] Immigration was the major of growth to 1930. In 1900, 37,000 foreign-born white per- n the metropolitan area made out 33 per cent of the popula- By 1930 the foreign born had sed by over 400,000 to reach a of almost 1.1 million, but they up only 23 per cent of the to- pulation.

e 1930 the number as well as oportion of foreign-born white creased. By 1950, the number eign born had decreased to the 1900 level and they made ly 13 per cent of the total pop- n. With the decline in immi- n attendant upon the passage immigrant exclusion acts dur- e 1920s, newcomers to Chica- have been mainly in-mi- from rural and especially rn USA. These in-migrants ncluded dominant proportions groes who began their arrival atively large numbers during War I when German U-Boat re greatly decreased foreign ration. The Negro in-migrant the south represents a substi- or the European immigrant as ce of manpower for Chicago's ding economic base and par- rly for her expanding indus- ctivity.

1900 there were only some nonwhite persons in the Chi- metropolitan area, making up er cent of the total population. 20, however, after the war time ration of Negroes to meet the of Chicago's expanding war ries, the number of nonwhites ipled to make up four per cent population. By 1950, reflect- e tremendous in-migration of es to help meet the needs of go's World War II industrial sion, nonwhites in the metro- n area numbered 605,000 and tuted 11 per cent of the total ation. In 1956 it is estimated ites had further increased to l of nearly 850,000, making up cent of the population.[4]

presentation of these data obscures the important differences of the peopling of the metropolitan area as regards the city and the ring. The actual peopling of Chicago has followed definite patterns which have been observed for metropolitan areas in general in the United States. Much of the story is derived from urban researches conducted at the University of Chicago for more than a generation, in which the Chicago area served as a research laboratory.

The city grew outward from its center of origin at the junction of the river and the lake. The newer portions of the area and thus the newer and more desirable housing tended always to be at the periphery; and the older portion of the city and therefore the less desirable living quarters tended to be near the center. In consequence, the population tended to be distributed in a spatial pattern reflecting ability to compete for the more desirable residential quarters.

All cities, including Chicago, have grown primarily through migration. The migrant is characteristically a person seeking economic betterment. Necessarily entering the labor market at the bottom of the economic ladder, his port of entry to the city is near the central area — the zone with the less desirable and therefore cheaper housing.

With the passage of time the newcomer and his children work their way up both the economic and social ladders. Their adjustment to their new urban environment is visible both in his changing location in the urban complex — in ever increasing distance from the center; and in his changing social status — in his higher education, occupation and the like.

Foreign Immigration

This generalized pattern of adjustment of in-migrants to the city was manifest in the actual peopling of Chicago. To begin with, as has been indicated, a major source of Chicago's population in the 19th century, as of all of the United States, was foreign immigration. Successive waves of immigrants, first from northwest and central Europe, and then from southern and eastern Europe, helped to meet the need of Chicago's expanding economy for additional human resources.

In 1850, over 52 per cent of Chi-

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orical growth of Chicago's popula- contained in the article by Philip M. . "Metropolitan Chicago—5.5 Million" in The Chicago Story, published by icago Association of Commerce and y, 1954.

iminary 1956 estimate by Chicago nity Inventory, University of Chicago's population was foreign born. The successive waves of immigrants — German, Irish, Scandinavian, Polish, Italian, Jewish and Greek—each followed the pattern of settlement and accommodation which has been described. Their improved physical location can be traced from generation to generation in increasing distances from the center of Chicago; and their higher social position can be traced through measurements of increasing education, higher occupational skills and increasing community-wide acceptance as fellow Americans rather than "foreigners."

One of the great contributions of the U. S. to human history, as exemplified in the experience of Chicago, lies in the demonstration that peoples of diverse ethnic, social and economic backgrounds, each starting at the bottom of the ladder as immigrants, can in the course of several generations, through the alchemy of "Americanization," become transformed from "undesirable foreigners" to acceptable members of the community.

The Negro in-migrant is now experiencing the same pattern of settlement and accommodation. The upward march of Negroes is evident in the difference in the location of the second and third generation Negro in-migrant in the city and his rising education, occupation, income, and general accommodation to metropolitan existence.

Metropolitan Ring

At the present time, and for some years to come, the growth of the metropolitan area is proceeding in large measure through the in-migration of Negroes into the central areas of the City and the out-migration of whites, who are being displaced, into the adjoining metropolitan ring. Between 1940 and 1950, for example, the standard metropolitan area as a whole increased by 655,000 persons. This increase comprised 385,000 white persons and 270,000 nonwhites.

The City of Chicago increased by 213,000 persons, with an increase of 227,000 nonwhites and a decrease of some 14,000 white persons. The metropolitan ring increased by 442,000, including 399,000 whites and 43,000 nonwhites.

In the City of Chicago there was a natural increase — that is, an excess of births over deaths — of 265,000 white persons during the decade, but there was a net civilian out-migration of 280,000 white persons, offset by a small increase in white military population which produced the net loss of white persons indicated. In contrast, there was a natural increase of some 47,000 nonwhites together with a net in-migration of 179,000 nonwhite persons to produce the total nonwhite increase of some 227,000.

The increase in the white population of the metropolitan ring was made up of a natural increase of 162,000 and a net civilian in-migration of 228,000 persons, most of them undoubtedly from the city. The increase of the nonwhite population in the ring was made up of a natural increase of about 12,000 and a net civilian in-migration of about 31,000.

Newcomers To Area

This pattern of metropolitan area growth — the Negro in-migrant coming into the center of the city and displacing the white resident who spills over into the metropolitan ring, may be expected to continue. But the increase of the nonwhite population of the ring, both through in-migration from other parts of the country and increasingly through in-migration of Negroes from within the city, may also be expected. It should be noted that in addition to the Negro in-migrants to the central city there are increasing numbers of Puerto Ricans, Mexicans, and, also, southern whites, for whom statistics are not as readily available. The number of such in-migrants, however, is relatively small compared with the Negro, who for some time will continue to be the main newcomer to the Chicago area.

Although the population projections reflect the continued expansion of Chicagoland's economic base and provide a basis for anticipating a continued rise in levels of living, they also point to the continuation of growing pains and frictions resulting from rapid growth. Most of the problems of rapid population growth, however, from now to 1980, will be experienced by the ring rather than the city. The city had its share of growing pains during the 19th century, and during the half of this century, when it creased by 1.9 million persons. ring is destined to experience, haps, even more severe probl attendant upon rapid growth t did the city. That is, the ring n brace itself for as much gro within a period of thirty years, million persons between 1950 1980, as the City of Chicago exp enced in the first fifty years of century.

Urban Renewal

As a concomitant of rapid gro the city developed, not structur structure, but subdivision, neigh hood and community at a t With the passage of time, the c older areas became obsolescent deteriorated, also not structure structure but neighborhood community at a time. The ci only now turning, under the p sions of the Urban Renewal related programs, to the rebuil of its decayed inner zones and renovation and protection of threatened with blight.

While the city is getting ri its slums, it is possible that metropolitan area slums of the ture are now developing in metropolitan ring. Rapid unpla growth may bring to the rin Chicago the same cycle of solescence, decay and blight th brought to the city. It remains t seen whether the experience of city will provide a basis for residents of the ring to preven widespread formation of slums the attendant many social, econ and political ills.

With the population satur of the city and the spilling ov population into the suburban the nature of the suburb and urban life is destined for change. Just as many of Chic older suburban areas are now cago's inner zones, so present lying suburban areas will, with continued growth of the metro tan area, become inner zones.

The present pattern of metro tan land use and living, it mu borne in mind, is not much than the product of three or generations development. It is ceivable that considerable ch will occur in this pattern in next three or four generations.

it seems clear that in the
tion which lies ahead to 1980,
etropolitan area as a whole
e much more heterogeneous
it is today. That is, "good
unities" and "bad communi-
vill be much more intermixed
hout the city and the metro-
n ring. Whether a community
atively "good" or "bad" place
ch to live or work will depend
on what its residents do about
n upon the accident of its
' and location within the
politan area. Moreover, the
tion of the metropolitan area
vitably bound to be much
greatly intermixed in respect
ite and Negro population lo-
. as well as the various ethnic
ngs of whites.

tinued rapid growth and
ng population composition,
ing large increases in propor-
of nonwhite population, will
e the most difficult human
ms of the coming generation.
ewest newcomers—the Negroes
inevitably become accommo-
to existence in metropolitan
go in accordance with the pat-
lescribed for successive waves
opean immigrants. But wheth-
process is a relatively easy
a difficult one, both for the
Negro and for the community to which he moves, will in large measure depend on the extent to which each person in the metropolitan area becomes aware of the fundamental changes in process, of his own role in these changes, and of his responsibilities and obligations to help make the entire metropolitan area a good neighborhood.

Finally, it may be anticipated that with the increasing complexities of metropolitan area living, with the decrease in the differences between city and suburban land use and population composition, and with the increasing awareness of the integral character of many of the problems of the metropolitan area — physical, economic, and social — that a growing metropolitan area consciousness will lead inevitably to changes in metropolitan area political structure and function. Tomorrow's Chicagoland will, it may be predicted, have traveled far down the road toward metropolitan area-wide planning of land use and circulation; gone far down the road in the integration of area services — police, fire, utilities, etc.; and thus, perhaps, even succeed in greatly decreasing the nearly 1,000 tax collecting and tax spending units now in the metropolitan area.

Chicago Tomorrow

(Continued from page 23)

e had written a completely ac-
forecast of our metropolitan
pment as little as 50 years
is statements would have been
led as absolutely impossible of
plishment.

Chicago story would have
nore incredible than most. To
ge one of the world's great
arising in little more than 100
from a swamp inhabited by
few hardy souls would have
harder than it is to give cred-
o what we foresee today.

probe the possibilities of a
ne must examine into the
on which it serves and come
opinion as to the demands
will be made upon it, as well
means by which a future
will meet them. Perhaps the
noteworthy of these basic func-
are economic, cultural and
al. The means of meeting
these functional demands are principally physical and psychological.

In the space available here we can make only the briefest possible examination of each phase of our future and then in the broadest of terms. In that frame of reference, let's take such a look.

Chicago's economic role already has been well established. It, along with New York and San Francisco, serves as one of the three economic capitals of the North American continent. Around these three hubs revolve the commercial and financial activities of the nation and the continent. Chicago is the mid-continent economic capital, serving the great territory lying between the Appalachians and the Rockies. Chicago's sphere of influence is the largest of the three; its area is the richest in natural resources; its territorial population will ultimately be the biggest. Against these positive

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ingredients of growth which one must reckon with in so many fields will come the further exploitation of the financial mechanisms of private capital. Just as we have seen the emergence of consumer credit, the insurance of safety, security and health, as well as the use of revenue securities — so too will the future bring new horizons for equally rewarding financial devices.

Physical Changes

The physical city is the tangible expression of its economic, cultural and social function. In the past we have seen the dramatic physical changes wrought by electricity, trucks, busses, private automobiles, steel frame buildings, elevators and mass production. We have felt the tremendous impact of universal education, of liberalized leisure and greater longevity. We have experienced the steady acceleration of full employment in a politically controlled economy.

What, then, will Chicago and its metropolitan area be like in the balance of this Century? What will be the physical manifestations of the pattern of living ahead?

In the first place, the deployment of the greatly increased population will be changed. The very highest income people will maintain two residences — one in the core of the city and one in the peripheral countryside. The highest income families will have their principal residence in the city where their children will attend private schools. The central city also will be the place of residence of young unmarried adults, childless couples who both go to business, divorced people and older couples whose children have been raised. Virtually all of these people will live in apartments. Most such structures will be multistory. Land coverage will be lower, giving more light and better exposure. The air will be conditioned as to climate and cleansed of pollution — either by dirt or pollen. Family clubs, with emphasis on child and adult leisure pursuits, will serve this population.

Gradually, the lowest income families (whose living standards will be most dramatically increased) will vacate the core of the city to take up residence in the middle-aged, but sound structures in the metropolitan area's middle belt. Middle income to upper middle income families will live in single family residences on the outskirts.

The downtown area will see a general resurgence of its functions, i.e., the centers for professional, commercial, retail, recreational, cultural, governmental facilities. This function will be performed for three major groups. First will be the *primary group* representing the immediately local population living in the area containing the apartment structures built to further the city's recentralization. Second will be the group we might call the *regional* population, being the people in the metropolitan area. Third will be the *continental* group in the broad area for which Chicago will serve as the economic capital. Here too the structures ultimately will cover a lower percentage of the total land and will be designed in such a way as to lend greater beauty and desirability to the downtown area.

Industry increasingly will be housed in the city's outer bel principally because of its land labor requirements. These land quirements will be large and labor needs more and more will met from the ranks of the skil The structures in which indu will be housed will be compat with the residential areas in wh they will be located in greater greater number. Only a fractior all industry will exert blighting fluence — either in nuisance, architectural development or other traditional ways. Instead being shunned by so-called bedr communities, industry will courted.

The circulation of the area's ulation will be sharply chan Public transportation will be vived and the private automo will be restored increasingly to original use (recreation), plus performance of family chores. regard shopping as a combinatio the two.

Midwest Stock Exchange

(Continued from page 158)

growing awareness on the part of Chicago area corporations that they can do their financing at home instead of in the east.

One of the results of the Midwest's growth which already is evident is the increasing autonomy of the Chicago offices of the big national brokerages. An increasing number of the national firms are expected to form what La Salle Street refers to as a "New York-Chicago axis." In this arrangement, firms put their offices in the two cities on an equal basis instead of the Chicago office being merely a branch.

Also in the future, more brokers are expected to establish second offices in Chicago outside of La Salle Street. There is a possibility some will open offices in suburbs. Brokers feel too that some of the big companies now on La Salle Street will move onto surrounding streets in an attempt to get ground floor locations.

The growing trend of decentralization of industry also is causing New York City's importance as a financial center to be seriously challenged. Midwest securities dealers expect this trend to continue with Chicago scoring the greatest gains.

Also, the St. Lawrence seaway project points to a new period of in trial development with new req ments for financing. This will c additional opportunities for nev curity issues and security owner here by individuals.

Still, Chicago in the foresee future will not be able to com in size with the assets availabl the east. Also to be overcome i tradition of more than 100 years has sent Midwest corporation the East to borrow money and se curities. One of the greatest obst for Chicago to overcome will be tradition, according to local bro

Equity Financing

Most of them believe equity fi ing will grow faster in Chicago debt financing. Chicago broker pect their greatest opportunity i immediate future to be in the p offerings of stock.

There are at least 100,000 individual stockholders in the cago area now than in 1949. than 500 investment clubs ar cated here. Also, expansion of sions and collections on insu policies are steadily taking plac ings are growing, and people

g an increasing interest in in-
g in securities.
tap this potential market in an
state mid-section of the coun-
th a population approaching
lion persons, Midwest member
exceed those of any other ex-
e. Today, the Midwest Stock
nge has 400 members, 297 of
represent partnerships and
ations with close to 1,500 of-
46 states. Two-thirds of these
ing members belong to no
exchange.
e systems link the Midwest Ex-
e and its members to key cities
the country. The bustling
g floor is connected by direct
nd teletype to members' and
est's branch offices, providing
transmission of buy and sell
. Market quotations are avail-
n these branch offices, enabling
dealers, and investors to keep
ouch with market changes.

Clearing by Mail

lwest has originated "clearing
il," which permits out-of-town
ers to earn full commissions
nsactions. This opportunity to
e greater net profit is encour-
brokerage firms outside of the
est area to join the exchange.
1949, 47 corporations have es-
hed Chicago offices to serve as
rars and transfer agents for the
ng number of securities on the
est. The local offices make for
ot delivery of securities and
nation of eastern transfer taxes
imposed.
e exchange has begun a new
imely service for its members
the stock borrow-loan plan.
rly a broker making a sale
found he could not deliver
n the four day limit. Conse-
tly, he was often forced to call
other individual houses to lo-
he needed stock.
der the stock borrow-loan plan,
a broker has delivery difficul-
e simply telephones Midwest's
ng corporation. It, in turn,
to locate the needed stock for
As compensation, the borrower
its the market value of the
in cash, to be used by the
r until his loan is returned.
tock borrow-loan plan benefits
ipating membership in two
The lender obtains short term
without paying interest and
the borrower solves his problem of making deliveries on time.

In the seven years since its formation, total value of shares traded annually on the Midwest Exchange has increased from something less than 200 million dollars annually to nearly a billion dollars. In the seven years, 121 new issues have come to the exchange, 21 solely listed and 100 which are listed on other exchanges as well.

Research directed by Ezra Solomon of the University of Chicago is now underway in an effort to determine the income, saving and capital expenditures in the Chicago metropolitan area, funds handled through financial institutions in the Chicago area, and the region's over-all financial market. The latter is divided into the money market and transactions in short term funds, the Midwest Stock Exchange, the new issue investment market, and the mortgage market. The study is underwritten largely by securities dealers. Research and analytical work in all sec-

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tions of the study are scheduled for completion this summer.

One question the study is attempting to answer is: What institutional or other reasons exist for any discrepancy between the magnitude of Chicago's economy and its magnitude as a financial center?

A great deal of the Midwest Exchange's future expansion depends upon the support of Chicago banks and the heads of industry in the Chicago area. With concerted backing of this group, Chicago securities men predict major strides in the growth of the Midwest Exchange by 1975.

Another factor that would add materially to Chicago's growth as a securities center is a more sympathetic attitude by securities departments in some midwestern states, including Illinois. Many brokers feel these departments have taken too stiff a position in administering their securities acts and have thrown up roadblocks for many legitimate projects.

Chemicals

(Continued from page 140)

1960 and no one knows where they will go after that.

The Midwest is, and will continue to be, the breadbasket of the nation. More mouths to feed means agricultural production must increase. The present crop surplus and the soil bank will probably disappear. And it's probable that still more food production, perhaps even imports, will be needed. New land isn't the answer, for 95 per cent of the tillable land is already in use. The only way out is by increasing per acre yields with fertilizer, insecticides and fungicides. It's estimated that only 25 per cent of the land in use gets fertilizer. All of it will have to before long.

Whereas the market for fertilizer is mature and saturated in other sections of the nation and has even decreased in places, the Midwest has shown increases of 65 to 170 per cent in consumption during the past decade. The Midwest already consumes more than one-third of the 20 million tons of fertilizer produced. This industry is expected to double in the next decade.

There should be an influx of plants into the Chicago area. Phosphate rock from Florida and sulfur from Texas and Louisiana move here cheaply by barge. The sulfur will be needed for three or four additional sulfuric acid plants. Ammonia production has already started to mushroom here and Calumet Nitrogen Products in Hammond is in the vanguard. Another half dozen plants could be in the offing. International Minerals and Chemical Corporation expects to increase the size of its Chicago Heights mixing plant by 50 per cent within the decade, probably soon. IMC's $4 million general headquarters building in Skokie, to be completed in 1958, is evidence that the company believes firmly in the future of this area.

Industrial Gases

Steel mill expansion will bring with it a tremendous increase in demand for industrial gases. Argon production has increased 300 per cent in the past five years as welding, cutting and shaping metals, TV tubes and light bulbs constantly require more. Industrial gases can be liquefied from air at any location and the most logical location is where they're used. This should mean at least ten good-sized plants of this type will be built here. The plating industry should grow tremendously also and will require two or three plants to supply its chemical needs.

H. A. Kern, Chairman of the Board of National Aluminate Corporation, expects business in water treatment chemicals to triple and adds that 30 to 50 per cent of this business will come from products yet to be dev oped. On fungicides, Otto Eis schiml, Chairman of the Board Scientific Oil Compounding Co pany, says, "With both brakes on enthusiasm I expect output to tri by 1967." He cites the interferen of molds with South Pacific ope tions in World War II, says t brought home to the governm the fact that mold was not an avoidable evil and that fabr leather, ropes and paper need spoil. Yet the fungicide industry still in its infancy and it may ta the next decade for industry a people to become mold conscious a do something about it.

Miscellaneous predictions from host of other helpful sources accou for a spate of other plants: phenol benzene - 4, naphthalene - 2, phtha anhydride - 5, toluene - 4, cresols

Synthetics have come of a Where we once got all our raw terials from natural sources, today get 99 per cent of dyes, 95 per c of resins and plastics, 75 per cent drugs and medicinals, 53 per cen paints, 52 per cent of rubber, 22 cent of textile fibers, from synth raw materials. They are the star the show and will continue to fo those percentage figures upward they replace more costly, less depe able, actually inferior natural fib metals and other materials. And cago will continue to be one of most important — if not the lea — centers of production.

Building Materials

(Continued from page 102)

ful and durable plastics in the form of films, sheets and foams.

Panelescent light, recessed and fixture-less lamps and mobile light sources.

Compact molded bathroom with translucent walls and remote controls, as well as a built-in "sun" for tanning while bathing.

New shapes and decorative qualities in locks and builders' hardware.

A modular communications system controlled by push-button dialing.

Whether or not Monsanto's plastic house will be cheaper than conventional ones will depend greatly on the materials used. But the house is designed for mass production, and the basic half-wing unit might produced as efficiently as an a mobile fender.

Marvin Goody, who designed house, puts it this way: "Abou per cent of the cost of a con tional house comes from labor the site. With our design, we lieve this item can be reduce about 15 per cent."

A slightly different approach f that exhibited by General Elec and Monsanto is being tried by Aluminum Company of Americ its "idea" house.

Instead of developing and u new materials, Alcoa will buil experimental houses throughout country, including one in the

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cago area, during 1957 to show new home uses for an established material — aluminum.

The purpose of the experimental houses is to show present and future home owners how to take advantage of aluminum's various merits in building, such as light weight, texture, freedom of form, color, resistance to corrosion, and prefabrication.

The prefabrication of building materials already has made big strides in the Chicago area, according to two Skidmore, Owings & Merrill architects — William Hartman, head of the Chicago office, and Bruce Graham, chief of design here.

They point out that precast concrete and prefabricated steel wall panels are being used in most office, apartment, and factory construction today. They also note the increasing use of higher voltage, pre-stressed concrete, tinted glass, movable partitions, special steels, plywood walls, combination heating-cooling systems, pre-installation painting, and spray plastering.

"What is really needed is more research," asserts Mr. Hartman. "The ideal wall material, for example, is still to be developed. Glass is satisfactory, but it lets in too much heat and glare." Mr. Hartman and Mr. Graham agree that plastics offer the greatest promise in the building field. "But they really haven't been applied — the emphasis has been on imitating other materials," Mr. Graham adds.

Plastic "Brick"

One of the outcomes of research in this general area is an inflatable plastic "brick" developed at the University of Illinois. The basic brick actually is a triangular inflated pillow of polyethylene film. When the pillows are assembled, one brick bears against another so that a self-supporting dome results. Although the structure is not rigid, any pressure exerted on it is absorbed throughout the dome. Although developed primarily for military applications (radar shelters, barracks, hangars, etc.), plastic bricks show potential for commercial use. Possible applications include covers for gardens, drive-in theaters, ball parks, and even entire communities, "weather conditioning" them to year-around subtropical climate.

Many new developments also
come from the Portland Cemen
sociation's research laboratorie
Skokie. One of the first was the
ter-cement ratio principle of pro
tioning concrete mixtures, w
established that there is a defi
relationship between the durabi
strength, and other propertie
concrete and the amount of mi
water used per unit of cement
ure. One of the newer developm
is air-entraining portland ce
to resist severe frost action and
ment scaling when certain chem
are used to melt pavement ice.

Research also has been condu
on precast structural members
pre-stressed concrete — which
it possible to cast hundreds of
of beams and other structural
per day on a production line

Armour Research

Numerous contributions to b
ing materials and techniques
come from the laboratories of
mour Research Foundation, a
dependent industrial research o
ization on Illinois Tech's cam
They have included such thin
new insulative materials, newly
portioned lightweight bricks, a
method for almost instantan
drying of paints and varnishes.

Newest Armour Research Fou
tion development is a lightw
ceramic building block — equa
size to the conventional con
block — that has greater stab
excellent acoustical and heat in
tion properties, and can be g
and produced in different c
Originally developed from aggr
shale and clay found in S
Arabia, the block later was prod
with similar material located
Chicago. A leading building
rials producer now expects to
duce these blocks commerciall
the near future.

These are but a few of the
new building materials and
niques being developed here
throughout the nation to meet
lenge of the future.

It has been more than a half
tury since Chicago's Daniel
ham remarked: "Make no
plans."

But the statement still typifie
spirit of Chicago, and reflects
actions of the city's architects, b
ers, and manufacturers.

a toast to the future...
yours...
Chicago's...
and ours...

A toast and a pledge... that your finest enjoyment will ever be our first concern in brewing the beers we offer, as it has been since our brewery's founding in 1891.

A toast to the stamina and character and imagination that have made Chicago the hub of the nation... that bring it now to the threshold of world pre-eminence.

A toast to our own progress, which has been linked for 66 years with this great city... and bids fair to make us more and more a favored institution in the minds of Chicagoans as we all go forward together into the great future ahead!

Reserve Beer

Meister Bräu Pilsener Beer

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brewers of Meister Bräu Pilsener and Reserve Beer

and its subsidiary
The Peter Hand Foundation
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